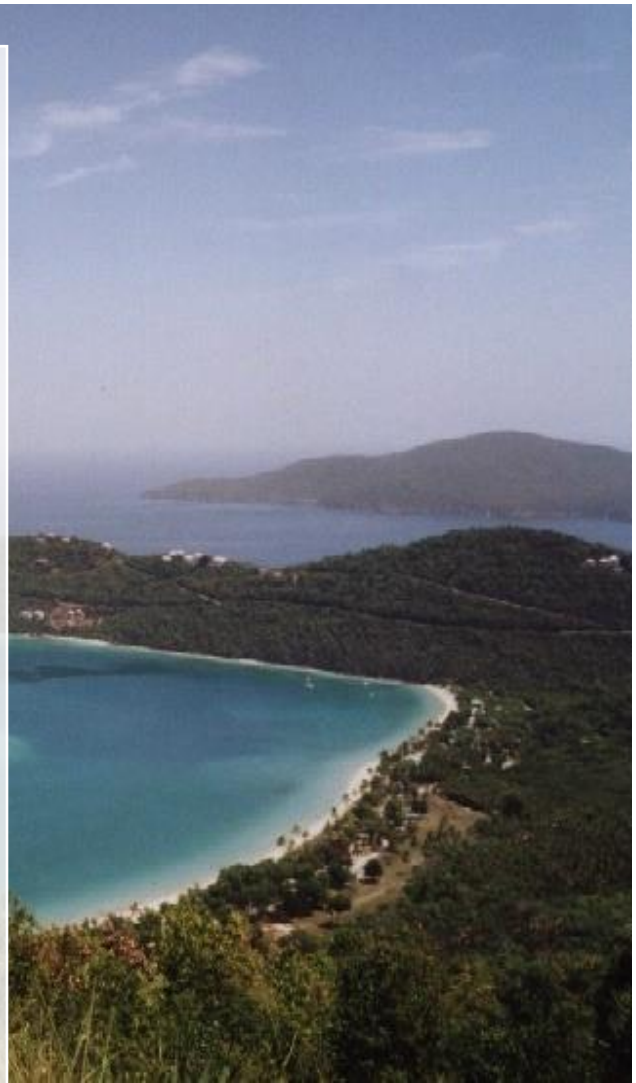


# USVI Integrated Water Quality Monitoring & Assessment Report

Department of Planning & Natural Resources  
Division of Environmental Protection  
Water Quality Management Program

# 2018



The 2018 USVI Integrated Water Quality Monitoring & Assessment Report intends to satisfy the USVI requirements of the Federal Clean Water Act Sections 305(b) and 303(d).

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## **I. EXECUTIVE SUMMARY**

### **A. Purpose**

The 2018 US Virgin Islands Integrated Water Quality Monitoring and Assessment Report was prepared by the Department of Planning and Natural Resources, Division of Environmental Protection (DPNR-DEP) and is intended to satisfy abbreviated reporting requirements under section 305(b) of the Federal *Clean Water Act* (CWA). This report is also intended to satisfy the requirements of section 303(d) of the Federal CWA by developing a list of impaired assessment units that will require Total Maximum Daily Loads (TMDLs). This report provides an assessment of the water quality conditions of the Virgin Island's surface and ground water resources for the period covering fiscal year 2016 and fiscal year 2017 (October 1, 2015 through September 30, 2017).

### **B. Overview of Water Quality Conditions and Trends**

Water quality in the US Virgin Islands is generally good but declining due to an increase in point and non-point source discharges into the marine environment. Sources such as direct discharges, stormwater run-off and vessel wastes are stressors on US Virgin Islands (VI) waters.

#### *1. Surface Water*

Non-point source pollution is the major source of surface water contamination in the Virgin Islands. Non-point source pollution sources are diffuse in nature and can be attributed to several causes such as:

- Failure to properly install effective silt control devices during construction,
- Failure to contain storm water run-off from unpaved roads,
- Failure of on-site disposal systems (OSDS),
- Resident (native and introduced) and migratory wildlife loading (direct loading and indirect loading, through for example, the grazing on plants that provide ground cover and help control erosion).

The discharging of wastes overboard directly into the sea by boat owners and the difficulty in regulating such activity also contributes to non-point source pollution problems seen in the US Virgin Islands. In addition, sewage contributions can be attributed to an antiquated municipal sewage system. Poor preventive maintenance practices due to lack of funding and other resources within the Waste Management Authority result in "bypasses" that result in the release of untreated sewage directly into the waters of the US Virgin Islands. The Government of the US Virgin Islands has made considerable progress towards resolving these issues by the upgrading of new treatment plants and upgrading other portions of the municipal system.

## 2. *Ground Water*

- The primary sources of groundwater contamination in the US Virgin Islands are: Bacteriological contamination from failing septic systems
- Leaking municipal sewer lines
- Migration of contamination from previous injections and disposal practices
- Frequent sewage bypasses (generally described as discharges direct to the sea, but with some percolation into sub-soils)

Other sources of ground water contamination include intrusion of salt water caused by the over-pumping of the aquifers, invasion of volatile organic compounds (VOC's), contamination from leaking underground storage tanks, and the indiscriminate/illegal discharges of waste.

### **C. Program Initiatives**

Under the provisions of the Federal and Local Water Pollution Control Act, the US Virgin Islands Water Pollution Control (WPC) and Water Quality Management (WQM) Programs are mandated to conserve, protect, preserve, and improve the quality of water for public use and the propagation of wildlife, fish and aquatic life for the USVI. To ensure the protection of water quality, projects under WQM monitor compliance with the Water Quality Standards as set forth in the US Virgin Islands Environmental Laws and Regulations.

In addition, the program-reporting period (FY2016 and FY2017) saw water quality management activities in the US Virgin Islands being planned for integration for management and reporting purposes with the Unified Watershed Assessment process of the Clean Water Action Plan. This US Virgin Islands Water Quality Assessment presents water quality assessment information in a format that preserves the US Virgin Islands long-term data series by using the same water quality monitoring sites. This report also indicates how these data can be summarized at a level that is compatible for both Water Quality Assessment and Unified Watershed Assessment processes.

The report classified these watersheds into 4 different categories, as follows:

#### **Category 1 - Watersheds in Need of Restoration**

These watersheds do not currently meet, or face imminent threat of not meeting, clean water and other natural resource goals.

#### **Category 2 - Watersheds Meeting Goals but Needing Preventative Action to Sustain Water Quality.**

These watersheds meet clean water and other natural resource goals and standards and support healthy aquatic systems. All such watersheds need the continuing implementation of core clean water and natural resource programs to maintain water quality and conserve natural resources.

### **Category 3 - Watersheds with Pristine/Sensitive Aquatic System Conditions on Lands Administered by Federal, State or Tribal Governments.**

The USVI Territory works cooperatively with federal land managers to identify watersheds with exceptionally pristine water quality, other sensitive aquatic system conditions, and drinking water sources that are located on lands administered by federal or local governments. These areas include currently designated and potential candidate Wilderness Areas, Outstanding Natural Resource Waters, and Wild and Scenic Rivers.

### **Category 4 - Watersheds with Insufficient Data to Make an Assessment.**

These watersheds lack significant information, critical data elements, or the data density needed to make a reasonable assessment at this time.

The Government of the Virgin Islands is presently enhancing and strengthening its territorial Water Pollution Control Act and revising its Water Quality Standards. The triennial review will be completed when the revised Water Quality Standards are adopted in the later part of FY2018. This ongoing process builds upon previous 305(b) and 303(d) reporting periods.

*\*Note: These categories are distinct from the five (5) Listing Categories [1, 2, 3(a, b, c, d), 4(a, b, c), and 5] applied for the 303(d) list of impaired waterbodies, discussed in Part III-B of this report.*

## **D. Summary of Designated Uses**

Waters of the Virgin Islands are designated for the maintenance and propagation of desirable species of wildlife and aquatic life (including any threatened or endangered species listed pursuant to section 4 of the Federal Endangered Species Act, 16 U.S.C. §§ 1531 – 1544, and/or any threatened, endangered, or indigenous species listed pursuant to Title 12, Chapter 2 of the Virgin Islands Code), primary contact recreation, pursuant to the Virgin Islands Water Quality Standard, Title 12, Chapter 7, §186-1 of the Virgin Islands Rules and Regulations (VIRR).

USVI waters are classified into four (4) groups based on designated uses: Class A, B, C and I: Class A waters are marine and coastal waters designated as Outstanding National Resource Waters. These waters have unique characteristics to be preserved (e.g., waters of exceptional recreational, environmental, economic, or ecological significance). Existing conditions for Class A waters cannot be altered except towards natural conditions. Class A water standards are the most stringent of the four (4) classes because of their pristine or near-pristine state. Class A Waters are designated for the maintenance and propagation of desirable species of wildlife and aquatic life (including any threatened or endangered species) and for primary contact recreation.

Class B and C are marine and coastal waters designated for maintenance and propagation of desirable species of wildlife and aquatic life (including any threatened or endangered species) and primary contact recreation.

Class C waters are those waters which are generally located in industrial harbors and ports and have less stringent water quality standards for certain parameters than Class B waters.

Class I waters are designated aquatic-influenced environments located within land boundaries and can either be inland groundwaters (Subclass IG waters) or inland surface waters. Inland surface waters can be fresh (Subclass IF Waters) or saline or brackish (Subclass IBS Waters). Waters included in Subclass IG includes all groundwaters that are current or potential supplies of potable water (and their associated recharge areas) with a naturally occurring salinity of less than 10,000 mg/L and are designated for use as a potable water source. Inland surface waters (Subclass IF and IBS waters) are designated for the maintenance and propagation of desirable species of wildlife and aquatic life (including any threatened or endangered species), and for primary contact recreation.

Detailed specifications for these classes are presented in Part II, Section B, below.

#### **E. Highlights of the Rest of this Report**

- Part III, Table III.C.1 has been updated to reflect the current status of all US Virgin Islands assessment units.
- Part III, 2018 Assessment Methodology has been updated.
- Part III, C. Monitoring Strategy has been updated.



## II. BACKGROUND

### A. Resource Overview

The territory of the United States Virgin Islands (USVI) comprises three major islands: St. Croix, St. John and St. Thomas. Additionally, 57 smaller islands and cays were documented in *A Natural History Atlas to the Cays of the US Virgin Islands* (Dammann and Nellis, 1992). Taken together, the territory encompasses a total land area of approximately 136 square miles or 110,000 acres (Table II.A.1) characterized by central mountain ranges and relatively small coastal plains. Peak elevations are 1,165 feet on St. Croix (Mount Eagle), 1,550 feet on St. Thomas (Crown Mountain) and 1,297 feet on St. John (Bordeaux Mountain). The islands are generally only 2 to 6 miles wide, with no land location far from the coastal waters. All data in this report focus on the main islands of St. Croix, St. John, and St. Thomas although several enclosed bays within the main islands' watersheds include offshore islands and cays.

The return of Water Island to the control of the Government of the US Virgin Islands, after 50-some years of direct federal administration (first as a fort by the Department of the Army during the Second World War, and later as the responsibility of the US Department of the Interior) raises the question of whether this area should be treated as a fourth island. For the purposes of the Water Quality Assessment, Water Island will be treated as another offshore cay or small inhabited island, such as Hassel Island or Great St. James because the area is small (less than 600 acres or 1 square mile), the estimated population is less than 200 permanent residents and the island is practically within St. Thomas Harbor.

The offshore cays and small islands are an inherent piece of the natural heritage of the Virgin Islands. Additionally, as an economic asset, these offshore sites could be included within a broad eco-tourism program for the territory. Many government-owned cays have already been established as wildlife reserves pursuant to Title 12 § 94(b)(2) VI Rules and Regulations. A number are important seabird nesting sites, and several are important roosting areas. The surrounding waters of most of the cays and islands teem with marine life, providing food for seabirds and for the fish and shellfish sought by commercial and recreational fishermen. They are also popular dive sites, which are important to the local diving industry.

There are no large freshwater lakes or ponds, and no perennial streams on any of the islands; intermittent streams can only be seen after heavy rainfall or during the rainy season (May – November). The absence of large freshwater resources and perennial streams means that guts (watercourses) form the basis for watershed management in the territory. (Relatively small salt ponds are also scattered across the three main islands).

This Water Quality Assessment is based on the United States Geological Survey (USGS) 8-digit Hydrologic Units for the US Virgin Islands, which designate two Virgin Islands watersheds: one for St. Croix (21020002), and one for the combined islands of St. Thomas and St. John (21020001).

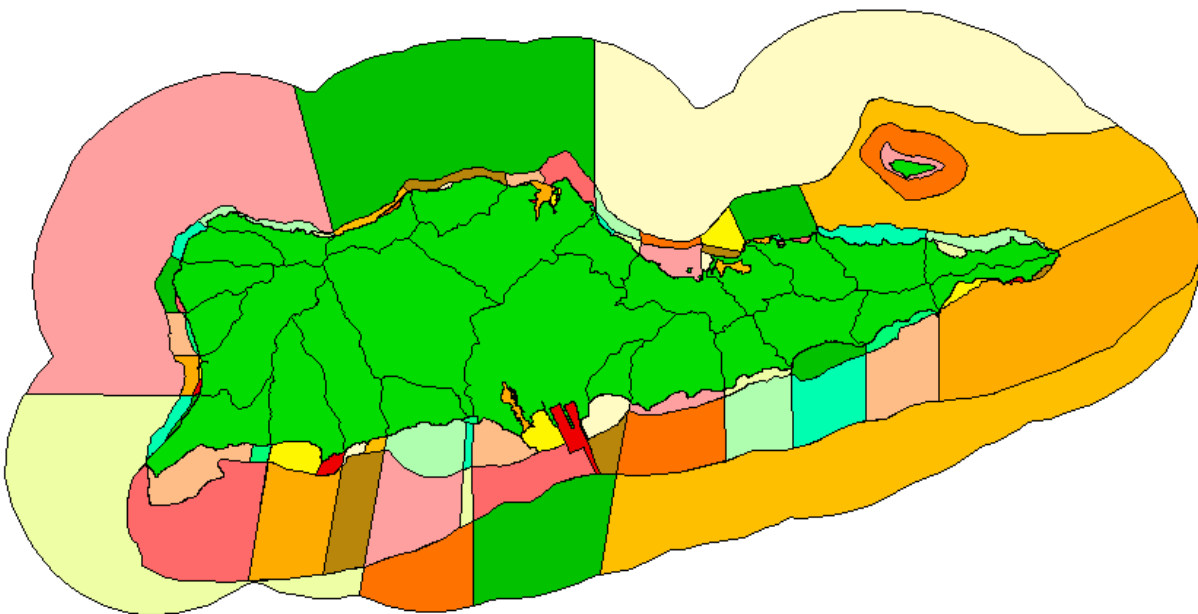
In addition, this Water Quality Assessment also uses 11- and 14-digit Hydrologic Unit definitions, created by the US Geological Service of the US Department of Interior and the Natural Resources Conservation Service of the US Department of Agriculture, to define territorial *Watersheds*. Within

these fourteen watersheds (seven on St. Croix, four on St. Thomas, and three on St. John), the Virgin Islands have further defined waterbody *Assessment Units*, which correspond to coastal elements of watersheds. To delineate the *Assessment Units* (AUs) within the territorial *Watersheds*, a coastal waterbody delineation was conducted by Battelle (2003). The delineation considered the legal limits of water quality classifications, TMDLs, subwatershed boundaries, shoreline geomorphology, benthic geomorphology, bathymetry and territorial limits, amongst other factors. The waters surrounding St. Croix, St. John and St. Thomas were delineated in to a total of 176 distinct AUs (84 AUs for St. Croix, 33 AUs for St. John and 59 AUs for St. Thomas).

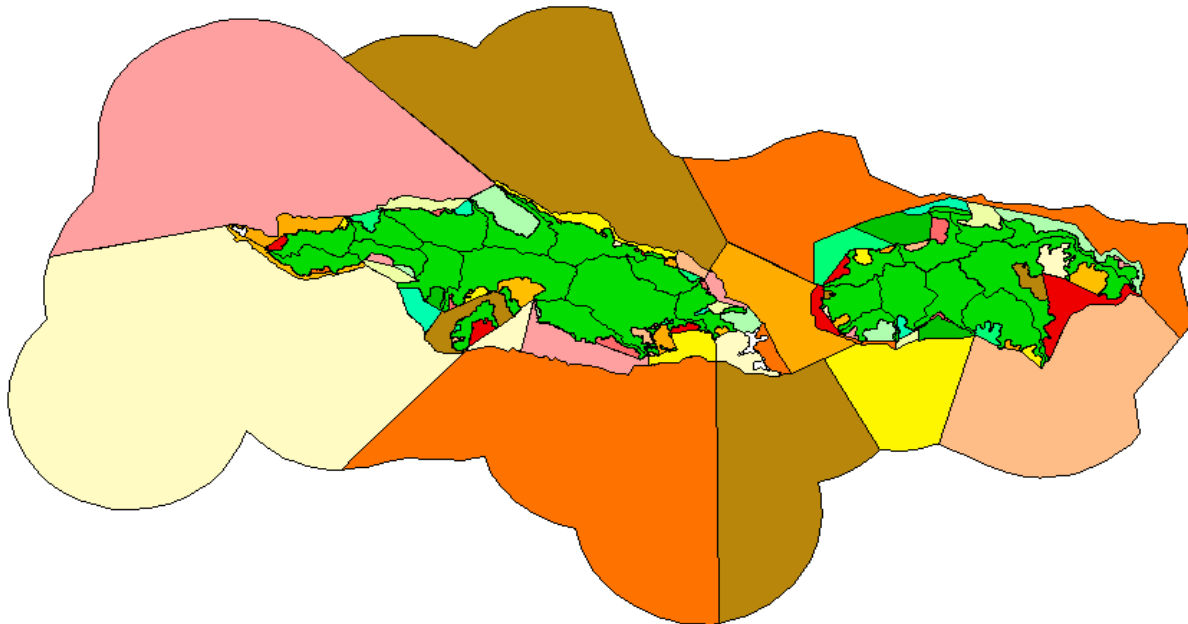
**Table II.A.1 Characteristics of Virgin Islands Watersheds and Islands**

	St. Croix	St. Thomas	St. John	Total
<b>Estimated Population</b>	50,600	51,634	4,170	106,404
<b>Land Area (square miles)</b>	84	32	20	136
<b>Land Area (acres)</b>	53,499	17,489	12,323	83,311
<b>Tidal/sub-tidal wetlands (square miles)</b>	2.5	2.4	1.1	6.0
<b>Coastal Shoreline</b>	70.3	52.8	49.7	172.8
<b>Embayments (square miles)</b>	1.5	0.9	0.1	2.5

**Figure II.A.1 St. Croix subwatersheds and assessment units (AU) overview**



**Figure II.A.2 St. Thomas/St. John subwatersheds and assessment units (AU) overview**



The 14-digit Hydrologic Unit delineations are to be integrated with the list of watersheds used for the analysis in the Unified Watershed Assessment: See Part III below.

**Table II A.2 Sub-watersheds Listed in the Unified Watershed Assessment (UWA)**

**St. Croix**

<b>Watershed Name</b>	<b>Acres</b>	<b>UWA Category</b>	<b>Watershed Name</b>	<b>Acres</b>	<b>UWA Category</b>
A. Northside	2,258	N/A	N. Bugby Hole	998	2
B. Baron Bluff	1,262	4	O. Cane Garden Bay	1,527	2
C. Salt River Bay	3,510	2	P. HOVENSA	7,642	1
D. Princess	2,182	N/A	Q. Bethlehem	6,689	1
E. Christiansted	1,225	1	R. Airport	1,654	1
F. Altoona Lagoon	1,239	N/A	S. Diamond	2,577	1
G. Southgate	1,597	1	T. Long Point Bay	2,044	2
H. Solitude	1,691	4	U. Sandy Point	2,735	4
I. Teague Bay	1,061	N/A	V. La Grange	3,137	2
J. Turner Hole	711	N/A	W. Prosperity	967	4
K. Madam Carty	1,128	N/A	X. Creque Dam	703	N/A
L. Great Pond Bay	2,007	1	Y. Butler Bay	918	N/A

M. Laprey Valley	1,853	N/A	Z. Rams Bay	757	N/A
<b>Total St. Croix Acres: 54,072</b>					

#### **St. Thomas**

<b>Watershed Name</b>	<b>Acres</b>	<b>UWA Category</b>	<b>Watershed Name</b>	<b>Acres</b>	<b>UWA Category</b>
A. Botany Point	945	4	H. Benner Bay	3,666	1
B. Santa Maria Bay	867	4	I. Frenchman Bay	1,137	N/A
C. Dorothea Bay	1,861	4	J. St. Thomas Harbor	2,696	1
D. Magens Bay	1,210	1	K. Cyril E. King Airport	1,524	4
E. Mandahl Bay	1,883	N/A	L. Perseverance Bay	704	N/A
F. Smith Bay	902	N/A	M. Fortuna Bay	707	N/A
G. Redhook Bay	850	1			
<b>Total St. Thomas Acres: 18,952</b>					

#### **St. John**

<b>Watershed Name</b>	<b>Acres</b>	<b>UWA Category</b>	<b>Watershed Name</b>	<b>Acres</b>	<b>UWA Category</b>
N. Hawksnest	1,305	N/A	T. Genti (Reef) Bay	1,208	3
O. Maho Bay	1,116	3	U. Fish Bay	1,503	1
P. Leinster Bay	795	N/A	V. Rendezvous Bay	416	
Q. Minnebeck Bay	629	3	W. Great Cruz Bay	529	1
R. Coral Bay	3,003	N/A	X. Mary Point	110	
S. Great Lameshur Bay	1,545	3			
<b>St. John Total Acres: 12,159</b>					

These watersheds align closely with the larger 14-digit Hydrologic Units drafted by the USGS and the NRCS.

The alignment is as follows:

**Table II.A.3 Alignment of 14-Digit HUCs and Watersheds**

8-Digit	11-Digit	14-Digit	Name	Acres
<b>21020002</b>			<b>St. Croix Watershed</b>	<b>54,072</b>
	<b>21020002010</b>		<b>North St. Croix</b>	<b>22,507</b>
		21020002010010	Northwest St. Croix	6,482
			A. La Grange	3,137
			B. Prosperity	967
			C. Creque Dam	703
			D. Butler Bay	918
			E. Rams Bay	757
		21020002010020	Northcentral St. Croix	7,030
			F. Northside	2,258
			G. Baron Bluff	1,262
			H. Salt River Bay	3,510
		21020002010030	Northeast St. Croix	8,995
			I. Princess	2,182
			J. Christiansted	1,225
			K. Altoona Lagoon	1,239
			L. Southgate	1,597
			M. Solitude	1,691
			N. Teagues Bay	1,061
	<b>21020002020</b>		<b>South St. Croix</b>	<b>31,565</b>
		21020002020010	Southeast St. Croix	8,224
			O. Turner Hole	711
			P. Madam Carty	1,128
			Q. Great Pond Bay	2,007
			R. Laprey Valley	1,853
			S. Bugby Hole	998
			T. Cane Garden Bay	1,527
		21020002020020	Southparts St. Croix	7,642

	U. HOVIC-VIALCO	7,642
21020002020030	Airport St. Croix	8,343
	V. Bethlehem	6,689
	W. Airport	1,654
21020002020040	Southwest St. Croix	7,356
	X. Diamond	2,577
	Y. Long Point Bay	2,044
	Z. Sandy Point	2,735
<b>21020001</b>	<b>St. Thomas-St. John Watershed</b>	
<b>21020001010</b>	<b>St. Thomas</b>	<b>18,952</b>
21020001010010	Northwest St. Thomas	4883
	A. Botany Point	945
	B. Santa Maria Bay	867
	C. Dorothea Bay	1,861
	D. Magens Bay	1,210
21020001010020	Northeast St. Thomas	3,635
	E. Manual Bay	1,883
	F. Smith Bay	902
	G. Redhook Bay	850
21020001010030	Southeast St. Thomas	4,803
	H. Benner Bay	3,666
	I. Frenchman Bay	1,137
21020001010040	Southwest St. Thomas	5,631
	J. St. Thomas Harbor	2,696
	K. Cyril E King Airport	1,524
	L. Perseverance Bay	704
	M. Fortuna Bay	707
<b>21020001020</b>	<b>St. John</b>	<b>12,159</b>
21020001020010	North St. John	3,845
	N. Hawksnest	1,305

	O. Maho Bay	1,116
	P. Leinster Bay	795
	Q. Minnebeck Bay	629
21020001020020	Southeast St. John	4,548
	R. Coral Bay	3,003
	S. Great Lameshur Bay	1,545
21020001020030	Southwest St. John	3,656
	T. Genti (Reef) Bay	1,208
	U. Fish Bay	1,503
	V. Rendezvous Bay	416
	W. Great Cruz Bay	529
	X. Mary Point	110

Finally, these two systems are displayed with the monitoring stations associated with each assessment unit and the number of water quality monitoring sites (Battelle, 2003) established by the US Virgin Islands Department of Planning and Natural Resources (Table 11.A.4).

**Table 11.A.4 Assessment Units, Square Miles and Monitoring Sites**

<b>AU ID</b>	<b>AU Name</b>	<b>Class</b>	<b>AU Size (mi<sup>2</sup>)</b>	<b>Associated Monitoring Stations</b>
VI-STC-01	Frederiksted, south	B	0.0451	There are currently no monitoring stations within this assessment unit.
VI-STC-02	Frederiksted Harbor	C	0.035	STC-28 Frederiksted Pier, STC-29 Frederiksted Public Beach, VI970611 F'sted (Est. Target)
VI-STC-03	Lagrange subwatershed, offshore	B	0.375	There are currently no monitoring stations within this assessment unit.
VI-STC-04	Prosperity, nearshore	B	0.1118	VI252619 Rainbow (Prosperity)
VI-STC-05	Prosperity subwatershed, offshore	B	0.5129	There are currently no monitoring stations within this assessment unit.
VI-STC-06	Sprat Hall Beach	B	0.0609	STC-30 Sprat Hall Beach, VI645288 Sprat Hall
VI-STC-07	Creque Dam/Butler Bay	B	0.529	There are currently no monitoring stations within this assessment unit.
VI-STC-08	Hams Bay	B	0.3144	There are currently no monitoring stations within this assessment unit.
VI-STC-09	Davis Bay	B	0.0522	There are currently no monitoring stations within this assessment unit.

VI-STC-10	Hams Bluff	B	0.5506	There are currently no monitoring stations within this assessment unit.
VI-STC-11	Northwest St. Croix HUC14, offshore	B	33.302	STC-OFF1, STC-OFF7
VI-STC-12	Cane Bay	B	0.0613	STC-32 Cane Bay, VI201013 Cane Bay
VI-STC-13	Baron Bluff subwatershed	B	0.3498	STC-31 Davis Bay, VI398766 Davis Bay
VI-STC-14	Belvedere	B	0.0557	There are currently no monitoring stations within this assessment unit.
VI-STC-15	Northside subwatershed	B	0.6109	There are currently no monitoring stations within this assessment unit.
VI-STC-16	Salt River Lagoon, Marina	B	0.0194	STC-33 Salt River Marina, STC-33C Salt River Lagoon, Marina
VI-STC-17	Salt River Lagoon, Sugar Bay	B	0.3244	STC-33D Salt River Lagoon, Sugar Bay
VI-STC-18	Salt River Bay	B	0.3229	STC-33A,B,E-J Salt River (Columbus Landing Beach), VI146901 Gentle Winds, VI558328 Columbus Landing
VI-STC-19	Judith Fancy	B	0.01	There are currently no monitoring stations within this assessment unit.
VI-STC-20	Salt River Bay subwatershed, west	B	0.2433	There are currently no monitoring stations within this assessment unit.
VI-STC-21	Salt River Bay subwatershed, east	B	0.8922	There are currently no monitoring stations within this assessment unit.
VI-STC-22	Northcentral St. Croix HUC14, offshore	B	23.61	STC-OFF4 North-2, STC-OFF11 North-4
VI-STC-23	St. Croix-By-the-Sea	B	0.0727	STC- 34 St. Croix-By-the-Sea, VI738082 Pelican Cove
VI-STC-24	Long Reef Backreef, west	C	0.1153	STC-48 Long Reef Backreef, west
VI-STC-25	Princess subwatershed, offshore	B	0.4343	STC-35 Long Reef Forereef West
VI-STC-26	Christiansted Harbor	C	0.9601	STC-37 Christiansted Harbor Entrance West, STC-40 St. Croix Marine, STC-41 Gallows Bay, STC-42 Public Wharf, STC-43 Water Gut Storm Drain, STC-44 Protestant Cay Beach, STC-45 Christiansted Harbor, STC-46 WAPA Intake, STC-47 Mill Harbor Condominium Beach, STC-49 Long Reef Back Reef East, VI572166 Condo Row (Princess), VI359239 Protestant Cay
VI-STC-27	Long Reef Forereef, east	B	0.3149	STC-36 Long Reef Forereef East, STC-35A LBJ (Pump Station) Outfall
VI-STC-28	Altona Lagoon	B	0.2337	There are currently no monitoring stations within this assessment unit.
VI-STC-29	Christiansted Harbor, east	C	0.1089	STC-1 Lagoon Recreational Beach, STC-39 Altona Lagoon Inlet



VI-STC-30	Beauregard Bay	B	0.2145	STC-2 Ft. Louise Augusta Beach, STC-38 Christiansted Harbor Entrance-East, VI213332 New Fort Louise Augusta
VI-STC-31	Buccaneer Beach	B	0.0166	STC-3 Buccaneer Hotel, VI651587 Buccaneer
VI-STC-32	Altona Lagoon subwatershed, offshore	B	0.6812	There are currently no monitoring stations within this assessment unit.
VI-STC-33	Punnett Bay	B	0.0576	VI610321 Shoy's
VI-STC-34	Punnett Point, east	B	0.0223	There are currently no monitoring stations within this assessment unit.
VI-STC-35	Tamarind Reef Lagoon (Southgate Lagoon)	B	0.0205	STC-4 Tamarind Reef Lagoon
VI-STC-36	Green Cay Beach	B	0.1017	VI563397 Chenay Bay Beach
VI-STC-37	Southgate subwatershed, offshore	B	2.2219	STC-5 Green Cay Beach
VI-STC-38	Solitude Backreef	B	0.9681	There are currently no monitoring stations within this assessment unit.
VI-STC-39	Teague Bay	B	0.1773	STC-8 Reef Club Beach, STC-9 St. Croix Yacht Club Beach, VI381319 Teague Bay (Reef)
VI-STC-40	Teague Bay Backreef	B	0.8547	STC-10 Cramers Park, VI351774 Cramer's Park
VI-STC-41	Buck Island Backreef	A	0.7675	STC-6 Buck Island Backreef, STC-7 Buck Island Anchorage
VI-STC-42	Buck Island Forereef	A	3.3497	There are currently no monitoring stations within this assessment unit.
VI-STC-43	Solitude and Teague Bay subwatersheds, offshore	B	18.822	There are currently no monitoring stations within this assessment unit.
VI-STC-44	Northeast St. Croix HUC14, offshore.	B	36.088	STC-OFF8 North-3
VI-STC-45	Isaac Bay	B	0.0853	There are currently no monitoring stations within this assessment unit.
VI-STC-46	Grapetree Bay	B	0.0425	STC-11B Isaacs Bay Forereef
VI-STC-47	Turner Hole Backreef	B	0.2772	STC-12 Grapetree Beach, VI297470 Grapetree Beach
VI-STC-48	Turner Hole subwatershed, offshore	B	16.949	STC-OFF5 East-2
VI-STC-49	Madam Carty Backreef	B	0.464	STC-13B Robin Bay
VI-STC-50	Madam Carty, offshore	B	3.5161	There are currently no monitoring stations within this assessment unit.
VI-STC-51	Great Pond	B	0.1578	There are currently no monitoring stations within this assessment unit.
VI-STC-52	Great Pond Bay	B	1.0184	STC-13A Great Pond Bay
VI-STC-53	Great Pond Bay subwatershed, offshore	B	3.0288	STC-OFF13 SE-4

VI-STC-54	Leprey Valley Backreef	B	0.3712	There are currently no monitoring stations within this assessment unit.
VI-STC-55	Leprey Valley subwatershed, offshore	B	2.8455	There are currently no monitoring stations within this assessment unit.
VI-STC-56	Bugby Hole Backreef	B	0.7042	STC-14A Halfpenny Bay - Manchenil, STC-14B Halfpenny Backreef, VI931289, Halfpenny
VI-STC-57	Bugby Hole subwatershed, offshore	B	3.9	There are currently no monitoring stations within this assessment unit.
VI-STC-58	Southeast St. Croix HUC14, offshore	B	24.146	STC-OFF2 SE-1, STC-OFF10 SE-3
VI-STC-59	Canegarden Bay	B	0.8542	STC-15 Canegarden Bay, STC-15A
VI-STC-60	Canegarden Bay, offshore	B	0.7933	There are currently no monitoring stations within this assessment unit.
VI-STC-61	Hess Oil Virgin Islands Harbor	C	0.671	STC-16 HOVENSA East Turning Basin, NW Corner, STC-17 HOVENSA West Turning Basin, NW Corner
VI-STC-62	Limetree Bay	B	0.7239	STC-18 Limetree Bay Container Port
VI-STC-63	Martin-Marietta Alumina Harbor	C	0.3228	STC-19 Krause Lagoon Channel, STC-20 Alumina Plant Dock
VI-STC-64	Manning Bay/Estate Anguilla Beach	B	0.0508	STC-23 Public Dump
VI-STC-65	Hovenssa, west	B	1.2865	STC-21 Spoils Island (Ruth Island)
VI-STC-66	Hovenssa subwatershed, offshore	B	2.8305	STC-22A Treatment Plant (POTW) Outfall
VI-STC-67	Southports St. Croix HUC14, offshore	B	8.1966	STC-OFF9 SW-3
VI-STC-68	Bethlehem subwatershed, inshore	B	0.2149	There are currently no monitoring stations within this assessment unit.
VI-STC-69	Bethlehem subwatershed, offshore	B	0.3971	There are currently no monitoring stations within this assessment unit.
VI-STC-70	Airport, nearshore	B	2.1943	There are currently no monitoring stations within this assessment unit.
VI-STC-71	Airport, offshore	B	4.263	STC-OFF6 South-2
VI-STC-72	Airport St. Croix HUC14, offshore	B	4.1803	There are currently no monitoring stations within this assessment unit.
VI-STC-73	Diamond, nearshore	B	0.1699	There are currently no monitoring stations within this assessment unit.
VI-STC-74	Enfield Green Beach/VIRIL Outfall	B	0.1376	There are currently no monitoring stations within this assessment unit.
VI-STC-75	Diamond subwatershed, offshore	B	2.8479	STC-24B Rum Plant (VI Rum) Outfall

VI-STC-76	Carlton Beach	B	0.2447	There are currently no monitoring stations within this assessment unit.
VI-STC-77	Long Point Bay	B	0.8376	STC-25 Long Point
VI-STC-78	Long Point Bay subwatershed, offshore	B	4.9231	STC-OFF12 SW-4
VI-STC-79	Good Hope Beach	B	0.1876	STC-26 Good Hope Beach
VI-STC-80	Sandy Point, nearshore south	B	2.0121	There are currently no monitoring stations within this assessment unit.
VI-STC-81	Sandy Point, offshore south	B	7.4306	There are currently no monitoring stations within this assessment unit.
VI-STC-82	Sandy Point, nearshore west	B	0.1158	STC-27 Sandy Point Public Beach, VI896490 Dorsch Bay, VI907985 Stony Ground
VI-STC-83	Sandy Point, offshore west	B	0.4875	There are currently no monitoring stations within this assessment unit.
VI-STC-84	Southwest St. Croix HUC14, offshore	B	18.347	STC-OFF3 SW-1
VI-STJ-01	Caneel Bay	B	0.2623	STJ-54 Caneel Bay, NPS-1 Caneel Bay, VI658467 Caneel Beach
VI-STJ-02	Hawksnest Bay	B	0.2246	STJ-44B Hawksnest Bay, VI255380 Oppenheimer, NPS-3 Hawksnest (middle beach), NPS-4 Hawksnest (Gibney Beach)
VI-STJ-03	Trunk Bay	A	0.0685	STJ-44A Trunk Bay, NPS-5 Trunk Bay
VI-STJ-04	Hawksnest Bay subwatershed, offshore	B	1.7287	NPS-2 Henley Cay
VI-STJ-05	Cinnamon Bay	B	0.1456	STJ-44C Cinnamon Bay, NPS-6 Peter Bay, NPS-7 Cinnamon Bay
VI-STJ-06	Maho Bay/Francis Bay	B	0.346	STJ-44D Francis Bay, VI536165 Big Maho Bay, NPS-8 Maho Bay, NPS-9 Francis Bay
VI-STJ-07	Maho Bay subwatershed, offshore	B	1.6071	There are currently no monitoring stations within this assessment unit.
VI-STJ-08	Mary Point	B	0.4831	There are currently no monitoring stations within this assessment unit.
VI-STJ-09	Leinster Bay	B	0.6627	NPS-10 Leinster Bay
VI-STJ-10	Minnebeck Bay	B	1.4876	NPS-11 Haulover Bay, NPS-30 Newfoundland Bay, NPS-31 Haulover East
VI-STJ-11	Newfound Bay	B	0.0765	There are currently no monitoring stations within this assessment unit.
VI-STJ-12	North St. John HUC14, offshore	B	23.719	STJ-OFF3
VI-STJ-13	Coral Harbor	B	0.6965	STJ-53 Coral Bay, STJ-56 Johnson Bay, VI823989 Johnson's Bay, NPS-15 Coral Bay Dock, NPS-16 Johnson Bay
VI-STJ-14	Hurricane Hole	B	0.7689	NPS-13 Water Creek, NPS-14 Princess Bay

VI-STJ-15	Round Bay	B	0.6015	STJ-57 Round Bay
VI-STJ-16	Coral Bay	B	2.2337	STJ-58 Privateer Bay, NPS-12 Long Point
VI-STJ-17	Salt Pond Bay	B	0.1978	STJ-52 Salt Pond Bay, NPS-17 Salt Pond Bay
VI-STJ-18	Grootman Bay	B	0.1046	There are currently no monitoring stations within this assessment unit.
VI-STJ-19	Great Lameshur Bay	B	0.359	STJ-51 Great Lameshur Bay, STJ-50 Little Lameshur Bay, NPS-18 Great Lameshur Bay, NPS-19 Yowsi Point, NPS-20 Little Lameshur Bay
VI-STJ-20	Southeast St. John HUC14, offshore	B	24.319	STJ-OFF7
VI-STJ-21	Genti Bay, nearshore	B	0.0947	STJ-49 Genti Bay, NPS-21 Reef Bay
VI-STJ-22	Genti Bay, offshore	B	0.769	There are currently no monitoring stations within this assessment unit.
VI-STJ-23	Fish Bay	B	0.2103	STJ-48 Fish Bay, NPS-22 Fish Bay
VI-STJ-24	Fish Bay subwatershed, offshore	B	0.1824	There are currently no monitoring stations within this assessment unit.
VI-STJ-25	Rendezvous Bay	B	0.4677	STJ-47 Rendezvous Bay, NPS-23 Rendezvous Bay, VI204627 Klain Bay, VI402599 Hart Bay
VI-STJ-26	Chocolate Hole	B	0.1004	STJ-46 Chocolate Hole, NPS-24 Chocolate Hole, VI391298 Chocolate Hole
VI-STJ-27	Rendezvous Bay subwatershed, offshore	B	0.1863	There are currently no monitoring stations within this assessment unit.
VI-STJ-28	Great Cruz Bay	B	0.1396	STJ-45 Great Cruz Bay. NPS-25 Great Cruz Bay, VI779192 Great Cruz Bay
VI-STJ-29	Turner Bay/Enighed Pond	B	0.057	STJ-55 Turner Bay, NPS-26 Turner Bay
VI-STJ-30	Cruz Bay	B	0.0674	STJ-43A Cruz Bay, North, STJ-43B Cruz Bay, South, STJ-43C Cruz Bay, North of Seaplane Ramp, STJ-43D Cruz Bay Creek North, NPS-27 Cruz Bay (ferry dock), NPS-28 Cruz Bay (airplane ramp), NPS-29 Cruz Bay (NPS dock), VI309453 Cruz Bay
VI-STJ-31	Great Cruz Bay watershed, offshore	B	0.5775	VI456779 Frank Bay
VI-STJ-32	Southwest St. John HUC14, offshore	B	10.142	STJ-OFF 4
VI-STJ-33	Pillsbury Sound	B	6.9399	STJ-OFF13 STJ West-4
VI-STT-01	Botany Bay	B	0.1576	STT-9 Botany Bay
VI-STT-02	Stumpy Bay	B	0.0597	STT-10 Stumpy Bay
VI-STT-03	Botany Bay subwatershed, offshore	B	1.309	There are currently no monitoring stations within this assessment unit.
VI-STT-04	Santa Maria Bay	B	0.3617	STT-11 Santa Maria Bay
VI-STT-05	Caret Bay	B	0.0266	STT-12 Caret Bay

VI-STT-06	Neltjeberg Bay	B	0.0562	STT-13B Neltjeberg Bay
VI-STT-07	Dorothea	B	0.0254	STT-13 Dorothea
VI-STT-08	Hull Bay	B	0.2049	STT-14 Hull Bay, VI616865 Hull Bay
VI-STT-09	Dorothea Bay subwatershed, offshore	B	0.7673	There are currently no monitoring stations within this assessment unit.
VI-STT-10	Magens Bay	B	1.6208	STT-15, STT-15A, STT-15B Magens Bay, VI672756 Magen's Bay
VI-STT-11	Northwest St. Thomas HUC14, offshore	B	55.088	STT-OFF1 STT NW-1, STT-OFF9 STT NW-3
VI-STT-12	Lovenlund Bay	B	0.0228	There are currently no monitoring stations within this assessment unit.
VI-STT-13	Mandahl Bay (Marina)	B	0.0131	STT-16B Mandahl Bay Entrance, STT-16C Mandahl Point Entrance
VI-STT-14	Tutu Bay	B	0.0414	There are currently no monitoring stations within this assessment unit.
VI-STT-15	Sunsi Bay	B	0.0152	STT-17B Sunsi Bay
VI-STT-16	Spring Bay	B	0.0102	STT-17A Spring Bay
VI-STT-17	Mandahl Bay subwatershed, offshore	B	1.1379	STT-16A Mandahl Bay, STT-18 Coki Point Bay, VI577932 Coki Point
VI-STT-18	Water Bay	B	0.0845	STT-19 Water Bay, VI591668 Water Bay
VI-STT-19	Smith Bay	B	0.1187	STT-20 Smith Bay, VI431925 Lindquist Beach
VI-STT-20	Smith Bay subwatershed, offshore	B	0.4103	There are currently no monitoring stations within this assessment unit.
VI-STT-21	St. John Bay	B	0.0411	STT-21A St. John Bay, VI327776 Sapphire Beach
VI-STT-22	Red Bay	B	0.0078	STT-21B Red Bay
VI-STT-23	Vessup Bay	B	0.0619	STT-22B Vessup Bay, USGS-50263000 Vessup Bay West
VI-STT-24	Red Hook Bay	B	0.1772	STT-22A Red Hook Bay, VI764950 Vessup Bay, USGS-50263500 Vessup Bay East
VI-STT-25	Great Bay	B	0.5593	STT-23 Great Bay, VI505006 Bluebeards Beach
VI-STT-26	Red Hook Bay, offshore	B	0.4725	There are currently no monitoring stations within this assessment unit.
VI-STT-27	St. James Islands, offshore	B	0.6691	There are currently no monitoring stations within this assessment unit.
VI-STT-28	Cowpet Bay	B	0.0757	STT-24 Cowpet Bay, STT-24A Cowpet Bay West
VI-STT-29	St. James Bay	B	1.2439	There are currently no monitoring stations within this assessment unit.
VI-STT-30A	Northeast St. Thomas HUC14, offshore north	B	42.927	STT-OFF6 STT North-2, STT-OFF12 STT NE-4

VI-STT-30B	Northeast St. Thomas HUC14, offshore south	B	24.908	There are currently no monitoring stations within this assessment unit.
VI-STT-31	Nazareth Bay	B	0.1793	STT-25 Nazareth Bay, STT-25B Secret Harbor, STT-26, STT-26A Benner Bay, VI389422 Secret Harbor
VI-STT-32	Jersey Bay, offshore	B	1.2925	There are currently no monitoring stations within this assessment unit.
VI-STT-33	Benner Bay	B	0.4187	USGS-50265900 Benner Bay South
VI-STT-34	Benner Bay Lagoon Marina	B	0.0355	STT-27D Mangrove Lagoon, Near Lavidia Marina, STT-27E Mangrove Lagoon, Near Compass Point, USGS-50265700 Benner Bay North
VI-STT-35	Mangrove Lagoon	B	0.2931	STT-27A Mangrove Lagoon, Near Treatment Plant, STT-27B Mangrove Lagoon, Off Sanitary Landfill (East of Ecotours), STT-27C Mangrove Lagoon, Near Tropical Marine Fuel Dock, USGS-50278800 Mangrove Lagoon West, USGS-50278500 Mangrove Lagoon East
VI-STT-36	Frenchman Bay subwatershed, east	B	0.3532	STT-28A Bovoni Bay, STT-28B Bolongo Bay, VI951607 Bolongo Bay
VI-STT-37	Frenchman Bay	B	0.0195	VI891065 Frenchman's Bay
VI-STT-38	Limetree Bay	B	0.0065	STT-29B Limetree Bay, VI776527 Limetree Bay
VI-STT-39	Morningstar Bay	B	0.0215	STT-29A Frenchman Bay, VI937158 Morningstar Bay
VI-STT-40	Pacquereau Bay	B	0.0453	STT-31A Flamboyant Cove
VI-STT-41	Frenchman Bay subwatershed, offshore	B	2.9233	STT-30 Morningstar Bay
VI-STT-42	Southeast St. Thomas HUC14, offshore	B	50.939	STT-OFF8 STT South-3, STT-OFF5 STT North2
VI-STT-43	St. Thomas Harbor, inner	C	0.7495	STT-31B Hassel Island, Off Navy Dock, STT-31C Hassel Island, Careening Cove, STT-32A Long Bay, Near South Dolphin, STT-32B Long Bay, Northeast Corner, STT-33A Long Bay, Off Outfall, STT-33B Long Bay, Off Outfall, STT-34 Long Bay, Off Pump Station, STT-35 Groden Bay, STT-36 St. Thomas Harbor, North of Coast Guard Dock, STT-37 St. Thomas Harbor, Cay Bay, STT-38 Haulover Cut
VI-STT-44	St. Thomas Harbor, outer	B	1.2128	There are currently no monitoring stations within this assessment unit.
VI-STT-45	Gregerie Channel	B	1.7072	STT-1 Crown Bay, Near Outfall, STT-39 Water Isle, East Gregorie Channel
VI-STT-46	Sprat Bay	B	0.3814	STT-42 Water Island Sprat Bay

VI-STT-47	Hassel Island at Haulover Cut to Regis Point	C	0.2074	STT-2 Crown Bay, Near Tamarind Outlet, STT-3 Subbase
VI-STT-48	Water Isle Hotel, Beach	B	0.0057	There are currently no monitoring stations within this assessment unit.
VI-STT-49	Druif Bay	B	0.0331	STT-40 Water Isle Hotel, Beach
VI-STT-50	Flamingo	B	0.061	STT-41 Water Island Flamingo Bay
VI-STT-51	Krum Bay	C	0.0754	STT-4 Krum Bay
VI-STT-52	Lindbergh Bay	B	0.2612	STT-5A Lindbergh Bay East, STT-5B Lindbergh Bay West, STT-5C WAPA Outfall, VI514102 Lindberg Bay
VI-STT-53	Cyril E. King Airport subwatershed, offshore	B	0.8499	STT-6C S.W. Road, Near Red Point Outfall
VI-STT-54	Perseverance Bay, offshore	B	0.4734	STT-6B College Cove
VI-STT-55	Brewers Bay	B	0.1076	STT-7A Brewers Bay, VI293962 Brewer's Bay
VI-STT-56	Perseverance Bay	B	0.2114	STT-7B Perseverance Bay
VI-STT-57	Fortuna Bay	B	0.0827	STT-8 Fortuna Bay
VI-STT-58	Fortuna Bay subwatershed, offshore	B	0.6553	There are currently no monitoring stations within this assessment unit.
VI-STT-59	Northwest St. Thomas HUC14, offshore	B	77.71	STT-6A Airport Runway, STT-OFF2 STT NW-1, STT-OFF11 STT SW-4

## B. Classifications, Total Waters and Applicable Standards

The information on Water Quality Criteria by Classification and pollutant are summarized below in the section *Summary of Criterion Levels of Virgin Islands Water Quality Standards* and Table II.B.1, which closely follows the wording of Virgin Islands Rules and Regulations. Review of the USVI Water Quality Standards commenced during this reporting cycle but at the time of writing have not yet been promulgated due to the impacts from two Category 5 Hurricanes in September 2017 and later changes in the Territorial Government Administration and a prolonged Federal Government shutdown. The previous standards were promulgated in FY15 August 2015 and remain in effect. As the standards will be promulgated after this reporting cycle, the assessments outlined in this report were made based on the 2015 USVI Water Quality Standards as detailed below.

The following serves as the legal description and boundaries for the Territorial Waters:

### *Class "A" Waters*

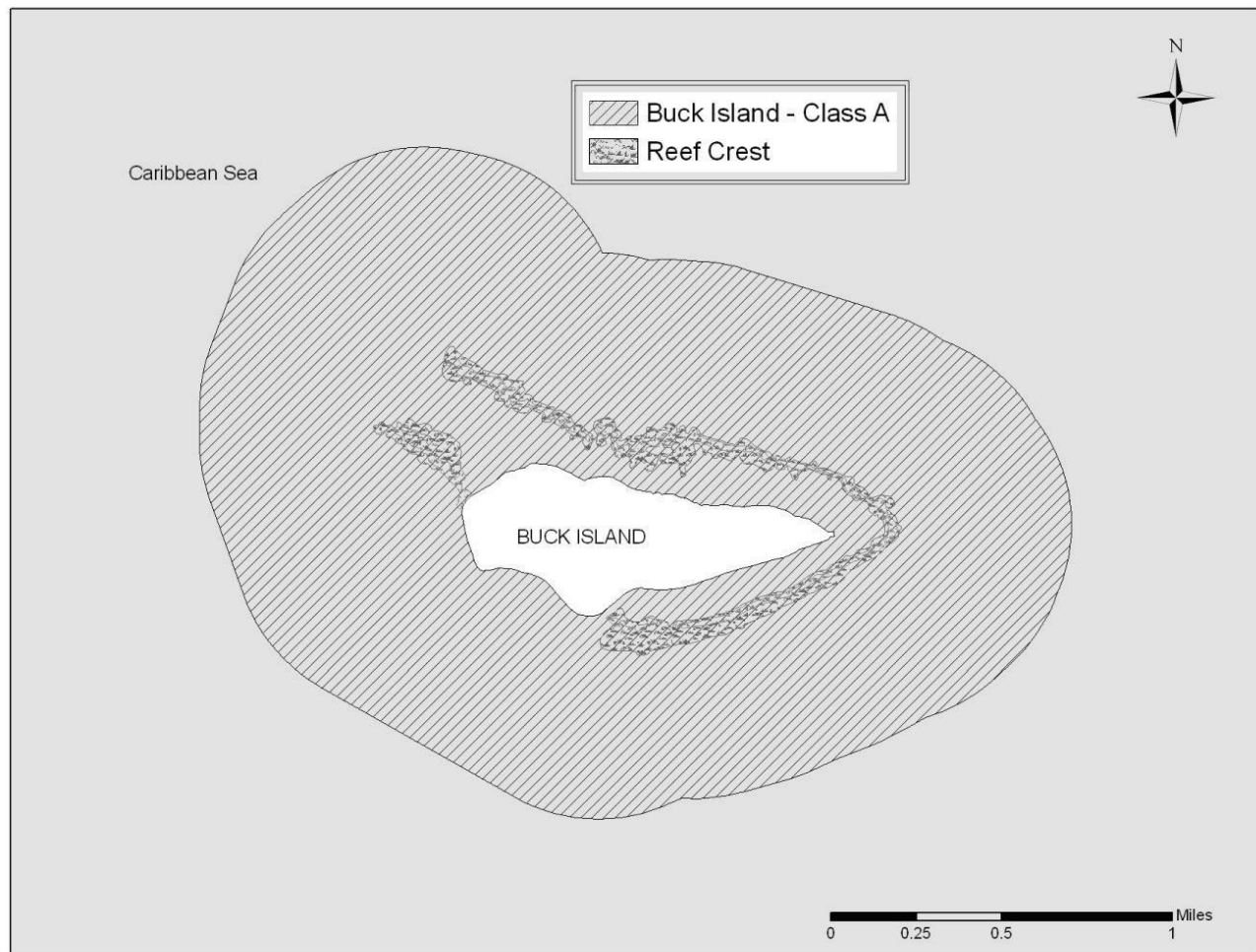
**Best usage of waters:** Preservation of natural phenomena requiring special conditions, such as the Natural Barrier Reef at Buck Island, St. Croix and the Under Water Trail at Trunk Bay, St. John. These are outstanding natural resource waters that cannot be altered except towards natural conditions. No new or increased dischargers shall be permitted. The designated uses of Class A waters are for the maintenance and propagation of desirable species of aquatic life (including any threatened or endangered species) and primary contact recreation.

**Quality criteria:** Existing natural conditions shall not be changed. The biological condition shall be similar or equivalent to reference condition established for biological integrity within Class A waters. In no case shall Class B water quality standards be exceeded.

**Legal Limits**

(1) Within 0.5 miles of the boundaries of Buck Island's Natural Barrier Reef, St. Croix.

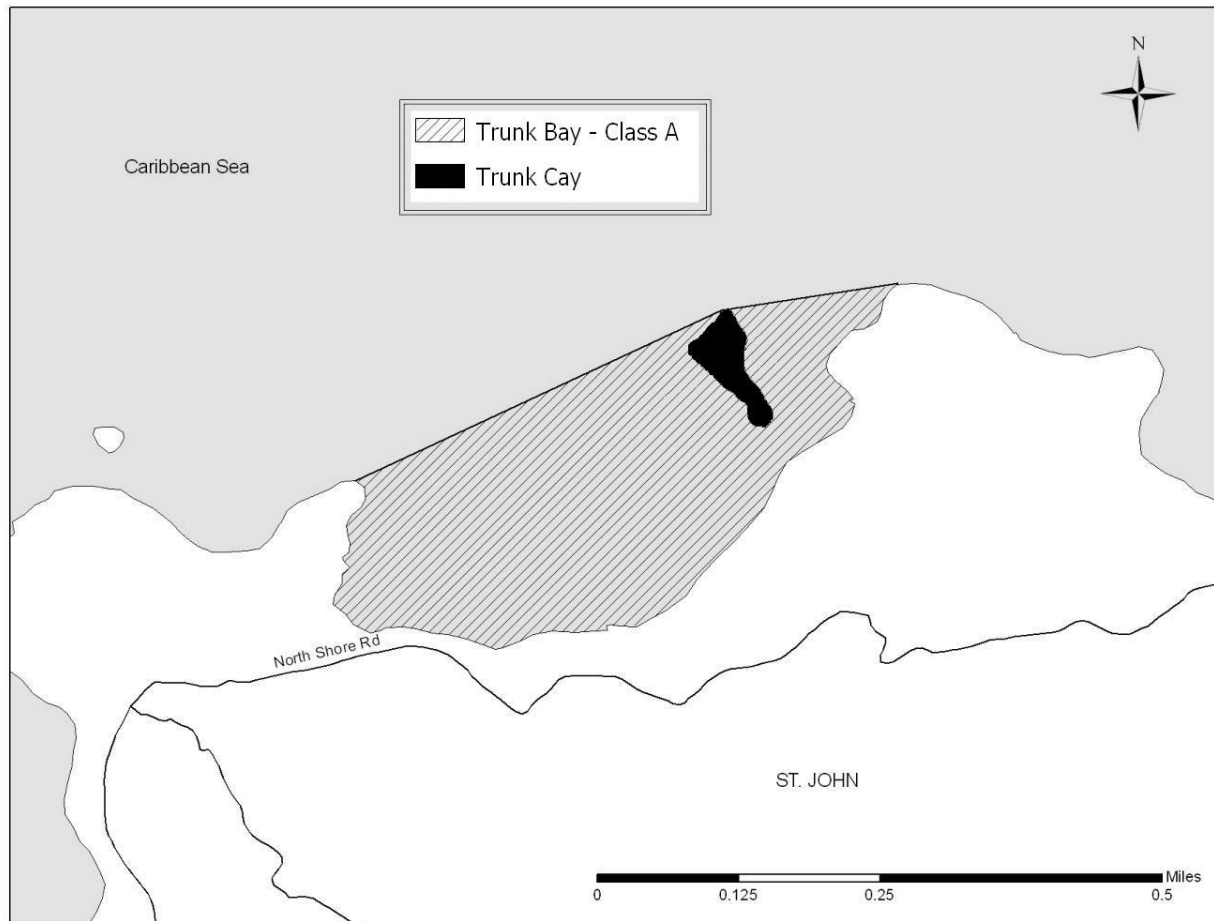
**Figure 1. Class A - Buck Island, St. Croix**





(2) Trunk Bay, St. John.

**Figure 2. Class A - Trunk Bay, St. John**



### ***Class “B” Waters.***

**Best usage of waters:** For maintenance and propagation of desirable species of aquatic life (including any threatened or endangered species) and for primary contact recreation.

(1) All other waters not classified as Class “A” or Class “C”.

**Quality criteria:** This Class allows minimal changes in structure of the biotic community and minimal changes in ecosystem function.<sup>1</sup> Virtually all native taxa are maintained with some changes in biomass and/or abundance; ecosystem functions are fully maintained within the range of natural variability. The biological condition shall be similar or equivalent to reference condition established for biological integrity within Class B waters.

### **Legal Limits**

(A) Those Class “B” waters not covered by color and turbidity criteria in section 186-3(b)(11) of this chapter include:

- (i) St. Thomas waters-Mandahl Bay (Marina), Vessup Bay, Water Bay, Benner Bay, and the Mangrove Lagoon.
- (ii) St. Croix waters-Carlton Beach, Good Hope Beach, Salt River Lagoon (Marina), Salt River Lagoon (Sugar Bay), Estate Anguilla Beach, Buccaneer Beach, Tamarind Reef Lagoon, Green Cay Beach and Enfield Green Beach.
- (iii) All non-marine waters defined as all Virgin Islands waters shoreward of the mean high-tide line.

(B) All other Class “B” waters are covered by the color and turbidity criteria in section 186-3(b)(11)(B) of this subchapter.

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<sup>1</sup> See Part III.B.(Assessment Methodology) for details on how DPNR assesses biocriteria to ensure this WQS requirement is upheld, and for future strategies to improve biological assessment.

**Figure 3. Class B - St. Croix (only marine waters displayed)**

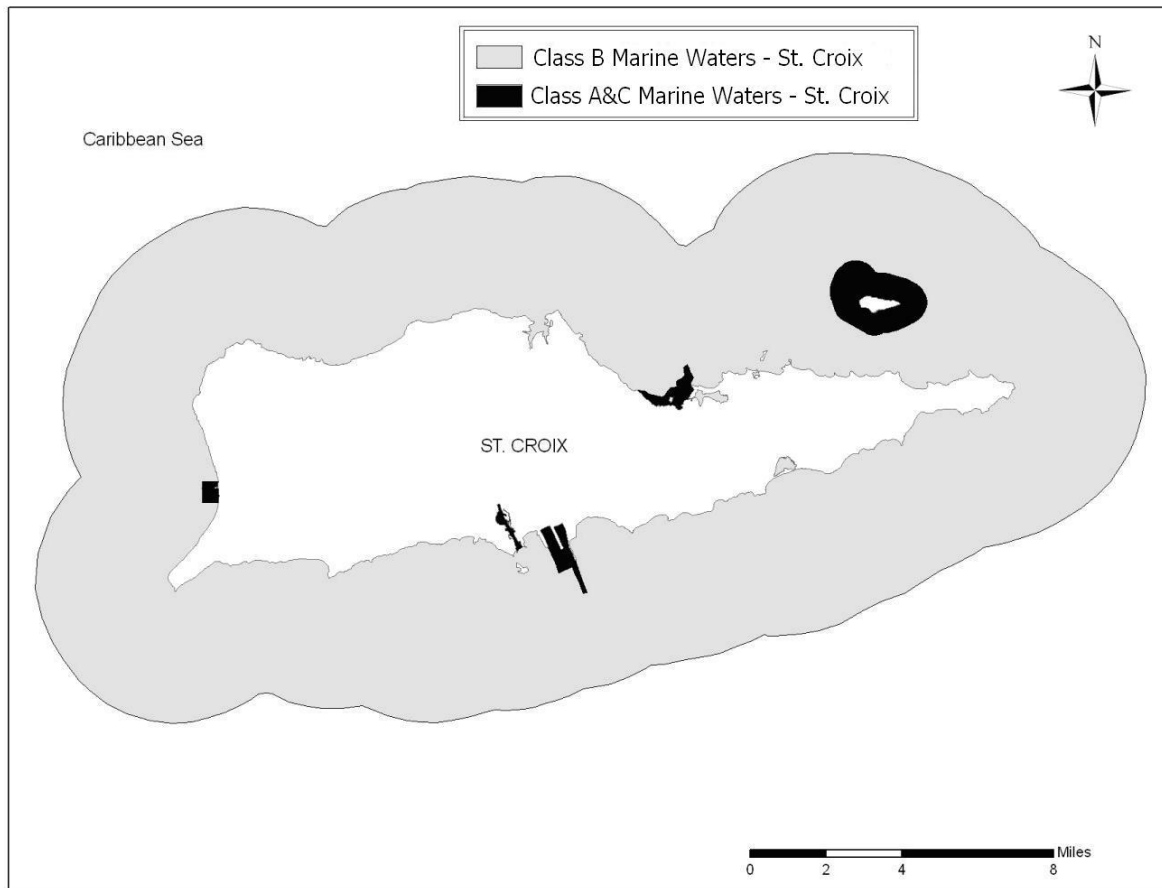
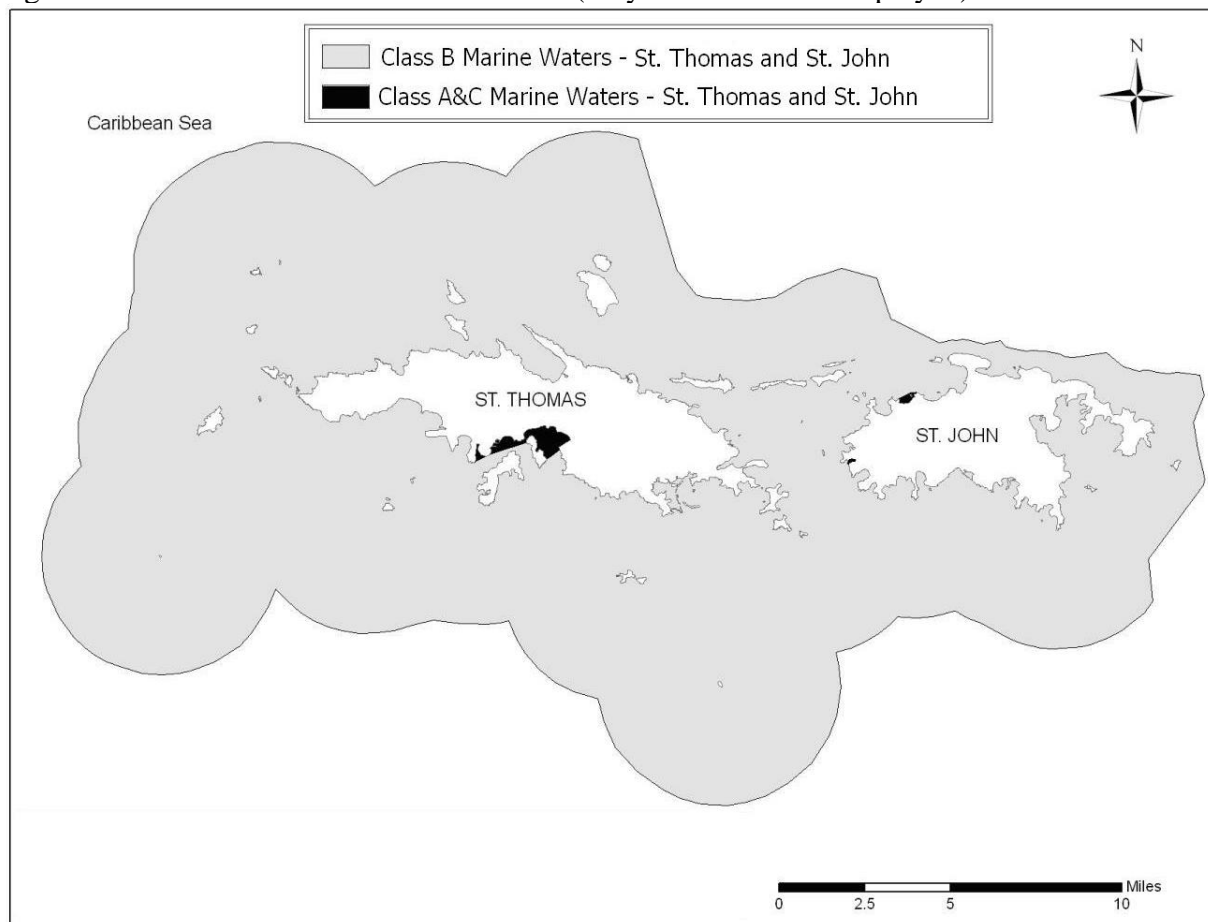


Figure 4. Class B - St. Thomas and St. John (only marine waters displayed)



### *Class “C” Waters*

**Best usage of waters:** For maintenance and propagation of desirable species of aquatic life (including any threatened or endangered species) and for primary contact recreation, industrial water supplies, shipping, and navigation.

**Quality criteria:** This Class allows for evident changes in structure of the biotic community and minimal changes in ecosystem function.<sup>2</sup> Evident changes in structure due to loss of some rare native taxa; shifts in relative abundance of taxa (community structure) are allowed but sensitive-ubiquitous taxa remain common and abundant; ecosystem functions are fully maintained through redundant attributes of the system. The biological condition shall be similar or equivalent to reference condition established for biological integrity within Class C waters.

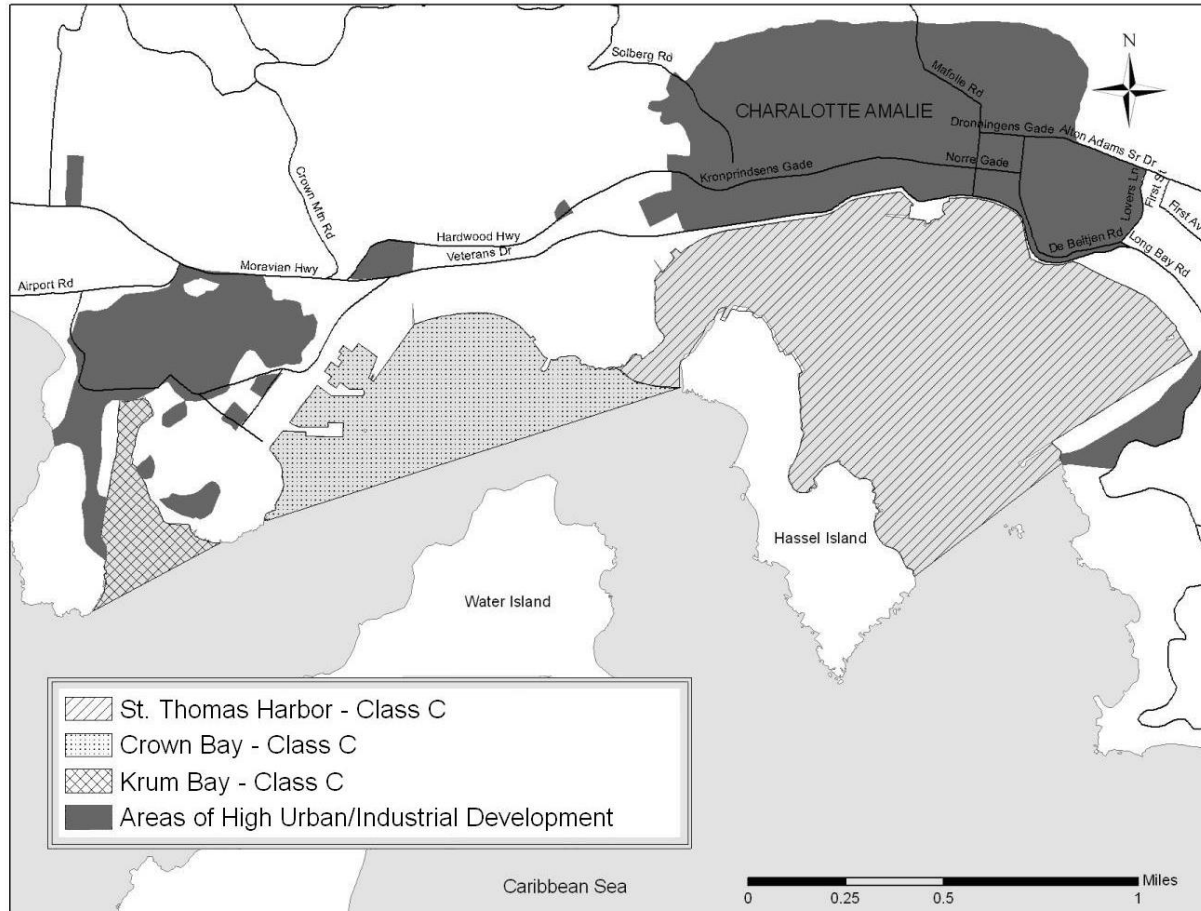
<sup>2</sup> See Part III.B.(Assessment Methodology) for details on how DPNR assesses biocriteria to ensure this WQS requirement is upheld, and for future strategies to improve biological assessment.

## Legal Limits

### (1) St. Thomas:

- (A) St. Thomas Harbor beginning at Rupert Rock and extending to Haulover Cut.
- (B) Crown Bay enclosed by a line from Hassel Island at Haulover Cut to Regis Point at West Gregerie Channel.
- (C) Krum Bay.

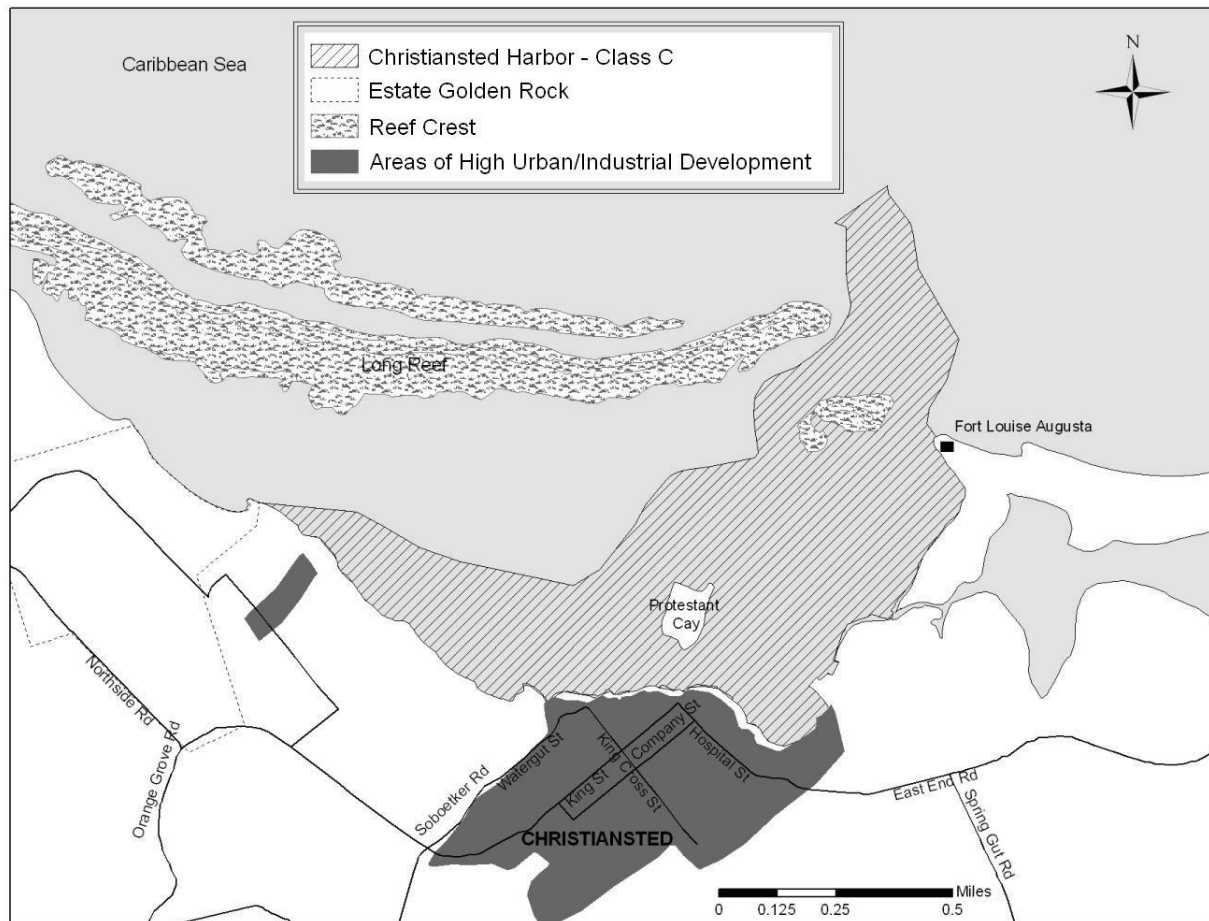
**Figure 5. Class C - St. Thomas Harbor, Crown Bay and Krum Bay, St. Thomas**



### (2) St. Croix:

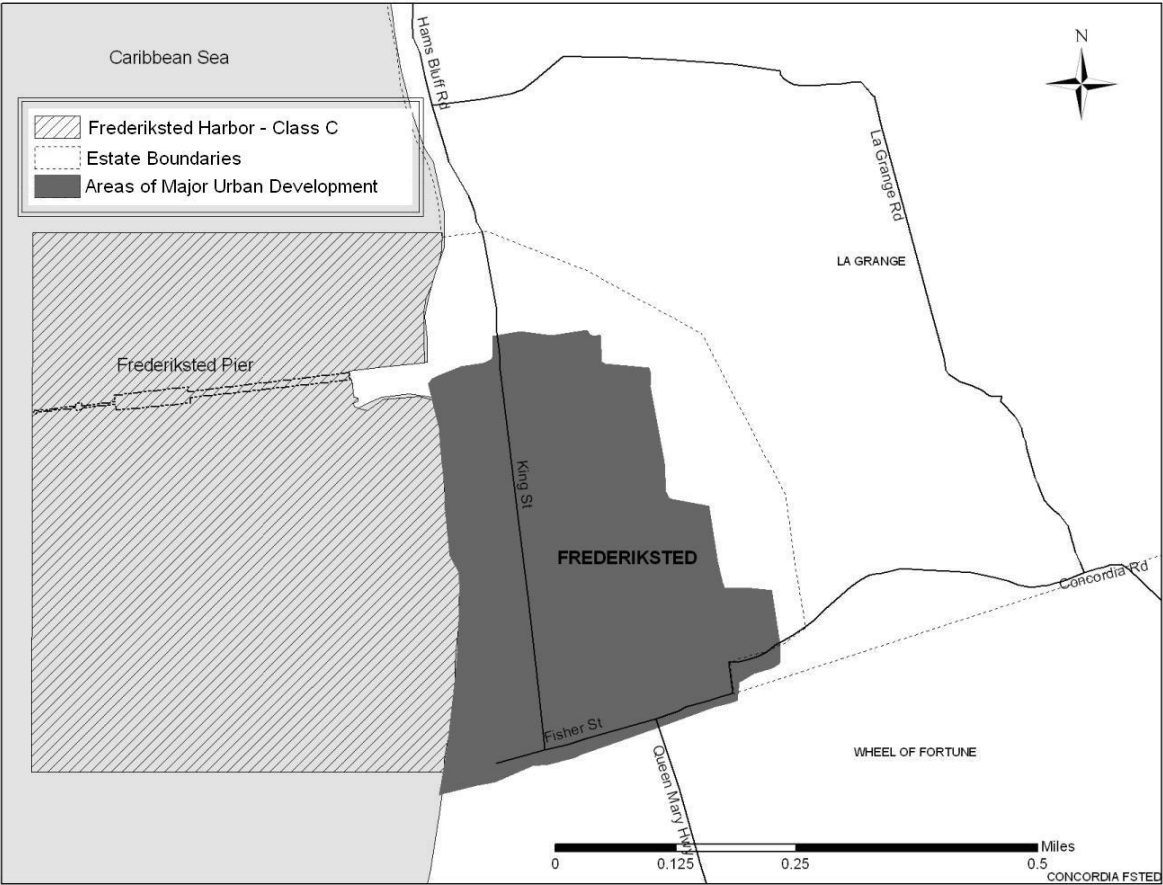
- (A) Christiansted Harbor from Fort Louise Augusta to Golden Rock, along the waterfront and seaward to include the navigational channels and mooring areas.

**Figure 6. Class C - Christiansted Harbor, St. Croix**



(B) Frederiksted Harbor from La Grange to Fisher Street and seaward to the end of the Frederiksted Pier.

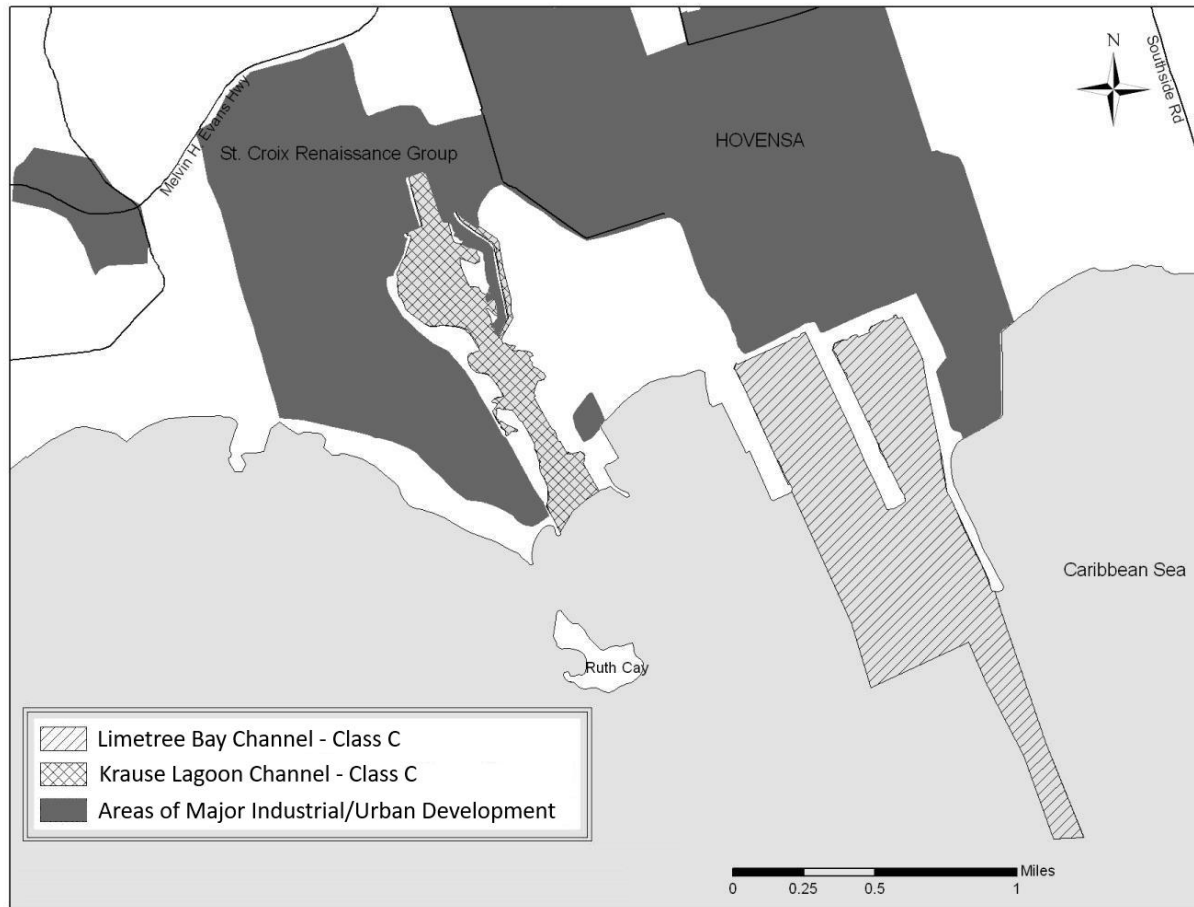
**Figure 7. Class C - Frederiksted Harbor, St. Croix**



(C) Limetree Bay Channel (formerly named Hess Oil Virgin Islands Harbor and HOVENSA Harbor).

(D) Krause Lagoon Channel (formerly Martin-Marietta Alumina Harbor and alternatively named Port Alucroix or St. Croix Renaissance Group Harbor).

**Figure 8. Class C - Limetree Bay Channel and Krause Lagoon Channel, St. Croix**

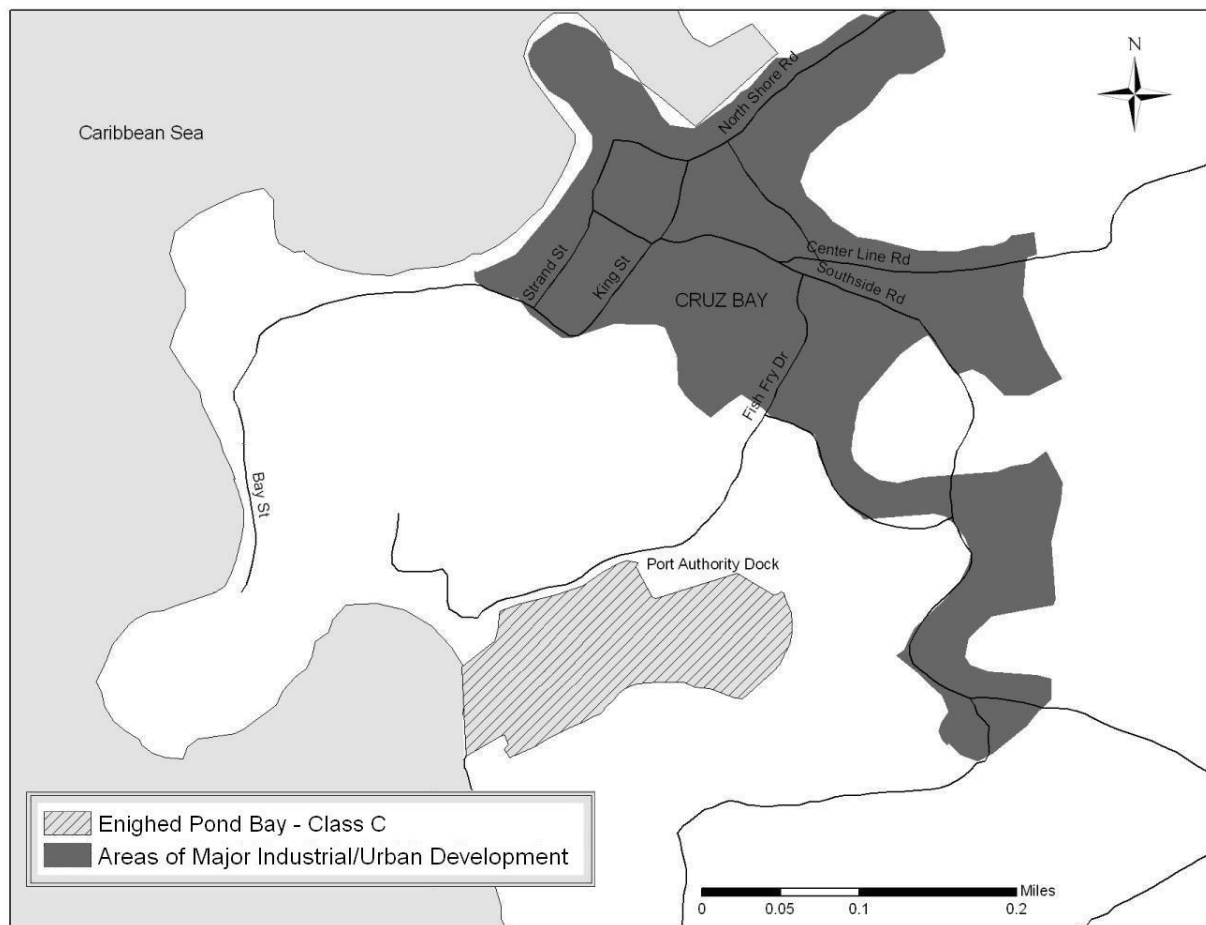




(3) St. John:

(A) Enighed Pond Bay

**Figure 9. Class C - Enlighted Pond, St. John**



### ***Class “I” Waters***

#### **Best usage of waters:**

Class I waters are designated aquatic-influenced environments located within land boundaries and can either be inland groundwaters (Subclass IG waters) or inland surface waters. Inland surface waters can be fresh (Subclass IF Waters) or saline or brackish (Subclass IBS Waters). Inland waters are designated for the maintenance and propagation of desirable species of wildlife and aquatic life (including any threatened or endangered species), as a potable water source, and for primary contact recreation.

**Legal Limits:** Subclass IBS waters include all inland brackish or saline waters and subclass IF waters include all fresh waters. Subclass IG waters include all inland groundwaters that are current or potential supplies of potable water (and their associated recharge areas) with a naturally occurring salinity of less than 10,000 mg/L.

## Summary of Criterion Levels of Virgin Islands Water Quality Standards (Abridged):

This section is not intended to provide a full overview of the Virgin Islands Water Quality Standards. For further detail, see *DPNR (Department of Natural Resources), 2015, Water Quality Standards for Waters of the Virgin Islands: Title 12, Chapter 7, Amendments to Subchapter 186 of Virgin Islands Rules and Regulations. Adopted August 28, 2015.*

### Class A

**Quality criteria:** Existing natural conditions shall not be changed. The biological condition shall be similar or equivalent to reference condition established for biological integrity within Class A waters. In no case shall Class B water quality standards be exceeded (see Table II.B.1 below).

In addition, the following quality criteria must be maintained in the area of coral reef systems (as delineated in the Benthic Habitat Atlas of Puerto Rico and the U.S. Virgin Islands (2002)):

- (a) Temperature: Not to exceed 25-29°C at any time, nor as a result of waste discharge to be greater than 1.0°C above natural. Thermal policies (Section 186-6) shall also apply.
- (b) Turbidity: For areas where coral reef ecosystems are located, a maximum nephelometric turbidity unit reading of one (1) shall be permissible.

### Class B & C

**Class B Quality criteria:** This Class allows minimal changes in structure of the biotic community and minimal changes in ecosystem function. Virtually all native taxa are maintained with some changes in biomass and/or abundance; ecosystem functions are fully maintained within the range of natural variability. The biological condition shall be similar or equivalent to reference condition established for biological integrity within Class B waters.

**Class C Quality criteria:** This Class allows for evident changes in structure of the biotic community and minimal changes in ecosystem function. Evident changes in structure due to loss of some rare native taxa; shifts in relative abundance of taxa (community structure) are allowed but sensitive-ubiquitous taxa remain common and abundant; ecosystem functions are fully maintained through redundant attributes of the system. The biological condition shall be similar or equivalent to reference condition established for biological integrity within Class C waters.

Numerical criteria for Class B and Class C waters is summarized in Table II.B.1 below.

**Table II.B.1**

<b>Criterion</b>	<b>Class B</b>	<b>Class C</b>
<b>Dissolved Oxygen</b>	Not less than 5.5 mg/l from other than natural conditions	Not less than 5.0 mg/l from other than natural conditions
<b>pH</b>	<8.3 Tolerable Limit >7.0  Normal range of pH must not be extended at any location by more than $\pm 0.1$ pH unit.	<8.5 Tolerable Limit>6.7  Normal range of pH must not be extended at any location by more than $\pm 0.1$ pH unit.
<b>Temperature</b>	Not to exceed 32° Celsius at any time, nor as a result of waste discharge be greater than 1°C above normal. Areas where coral reef ecosystems are located shall not exceed 25-29°C at any time, nor as a result of waste discharge be greater than 1.0°C above natural.	
<b>Bacteria</b>	The 30-day geometric mean for enterococci shall not exceed 30 CFU/100 mL and no more than 10 percent of the samples collected in the same 30 days shall exceed 110 CFU/100 mL.	Same as Class B
<b>Phosphorus</b>	Total P shall not exceed 50 ug/L any coastal waters	Same as Class B
<b>Suspended, colloidal or settleable solids</b>	None from wastewater sources which will cause disposition or be deleterious for the designated uses shall be present in any waters.	Same as Class B
<b>Oil and Floating substances</b>	No residue attributable to waste water. No visible film; no globules of grease shall be present in any waters.	Same as Class B
<b>Radioactivity</b>	<b>Gross Beta:</b> 1000 picocuries per liter, in the absence of Sr 90 and alpha emitters <b>Radium-226:</b> 3 picocuries per liter <b>Strontium-90:</b> 10 picocuries per liter	Same as Class B
<b>Taste and Odor</b>	None in amounts that will interfere with the use for primary contact recreation, potable water supply or that will render undesirable taste or odor to edible aquatic life	Same as Class B

<b>Color and Turbidity</b>	<ul style="list-style-type: none"> <li>• A Secchi disc shall be visible at a minimum depth of one meter</li> <li>• A maximum nephelometric turbidity unit reading of three (3) shall be permissible or a maximum of one (1) shall be permissible in areas with coral reef</li> </ul>	Same as Class B
<b>Toxicity</b>	<p>The applicable numeric water quality criteria for toxic pollutants to protect the designated uses of Territorial waters shall be the Environmental Protection Agency's (EPA) national recommended Clean Water Act section 304(a) water quality criteria, EPA's Office of Water, Office of Science and Technology (4304T), (adopted for the protection of freshwater and saltwater aquatic life from acute (criterion maximum concentration) and chronic (criterion continuous concentration) effects; and, the protection of human health from the consumption of organisms).</p>	
<b>Biocriteria</b>	<p>The Territory shall preserve, protect, and restore water resources to their most natural condition. The condition of these waterbodies shall be determined from measures of physical, chemical, and biological characteristics of each waterbody class, according to its designated use. As a component of these measures, the Territory may consider the biological integrity of the benthic communities living within waters. These communities shall be assessed by comparison to reference conditions(s) with similar abiotic and biotic environmental settings that represent the optimal or least disturbed condition for that system. Such reference conditions shall be those observed to support the greatest community diversity and abundance of aquatic life as is expected to be or has been historically found in natural settings essentially undisturbed or minimally disturbed by human impacts, development, or discharges. This condition shall be determined by consistent sampling and reliable measures of selected indicator communities of flora and/or fauna and may be used in conjunction with other measures of water quality. Waters shall be of a sufficient quality to support a resident biological community as defined by metrics based upon reference conditions. These narrative biological criteria shall apply to all marine and coastal waters of the Virgin Islands to include estuarine, mangrove, seagrass, coral reef and other marine ecosystems based upon their respective reference conditions and metrics.</p>	
<b>General water quality criteria</b>	<p>These waters shall be free of substances attributable to municipal, industrial, or other discharges or wastes as follows:</p> <ol style="list-style-type: none"> <li>(1) Materials that will settle to form objectionable deposits.</li> <li>(2) Floating debris, oils, scum, and other nuisance matter.</li> <li>(3) Substances producing objectionable color, odor, taste, or turbidity.</li> <li>(4) Materials, including radionuclides, in concentrations or combinations which are toxic or which produce undesirable physiological responses in human, fish and other animal life, and plants.</li> </ol>	

<p>(5) Substances and conditions or combinations thereof in concentrations which produce undesirable aquatic life.</p> <p>(6) Exotic or aquatic nuisance species.</p>
<p>All waters of the U.S. Virgin Islands shall meet generally accepted aesthetic qualifications and shall be capable of supporting diversified aquatic life.</p> <p>"Waters" of the U.S. Virgin Islands shall be defined, as follows, as in by Title 12, Chapter 7, Section I82(f) of the Virgin Islands Code; "Waters of the United States Virgin Islands" means all waters within the jurisdiction of the United States Virgin Islands including all harbors, streams, lakes, ponds, impounding reservoirs, marshes, water-courses, water-ways, wells, springs, irrigation systems, drainage systems and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, situated wholly or partly within or bordering upon the United States Virgin Islands, including the territorial seas, contiguous zones, and oceans."</p>

\*\* Information listed in the table above is from the USVI Water Quality Standards promulgated on August 28, 2015.

## Class I

*Subclass of Inland Fresh Waters (IF Waters) and Inland Brackish or Saline Waters (IBS Waters):*

**Quality criteria:** Waters in this subclass shall remain in their natural state to the maximum extent possible with an absolute minimum of pollution from any human-caused source. To the extent possible, the ecological character of these areas shall be maintained and protected. The following water quality standards apply to the Class I Waters:

- (a) Bacteria: The 30-day geometric mean for enterococci shall not exceed 30 CFU/100 mL and no more than 10 percent of the samples collected in the same 30 days shall exceed 110 CFU/100 mL.

*Subclass of Inland Groundwaters (IG Waters):*

**Quality criteria:** Waters in this subclass shall remain in their natural state to the maximum extent possible with an absolute minimum of pollution from any human-caused source.

- (a) Bacteria: The 30-day geometric mean for enterococci shall not exceed 30 CFU/100 mL and no more than 10 percent of the samples collected in the same 30 days shall exceed 110 CFU/100 mL.

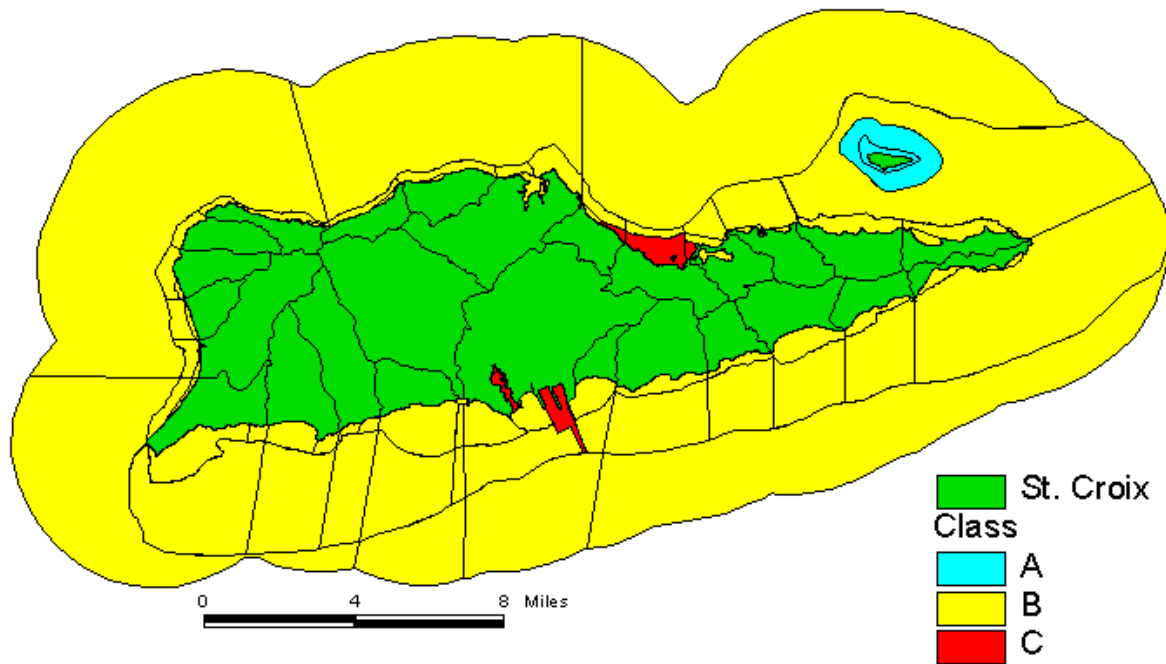
Numeric toxic pollutant criteria are also stipulated for Class I waters.

Table II.B.2, Figure II.B.2 and Figure II.B.3 provide a summary of the area occupied by each class of marine and coastal waters and their spatial distribution across the three main islands of the USVI.

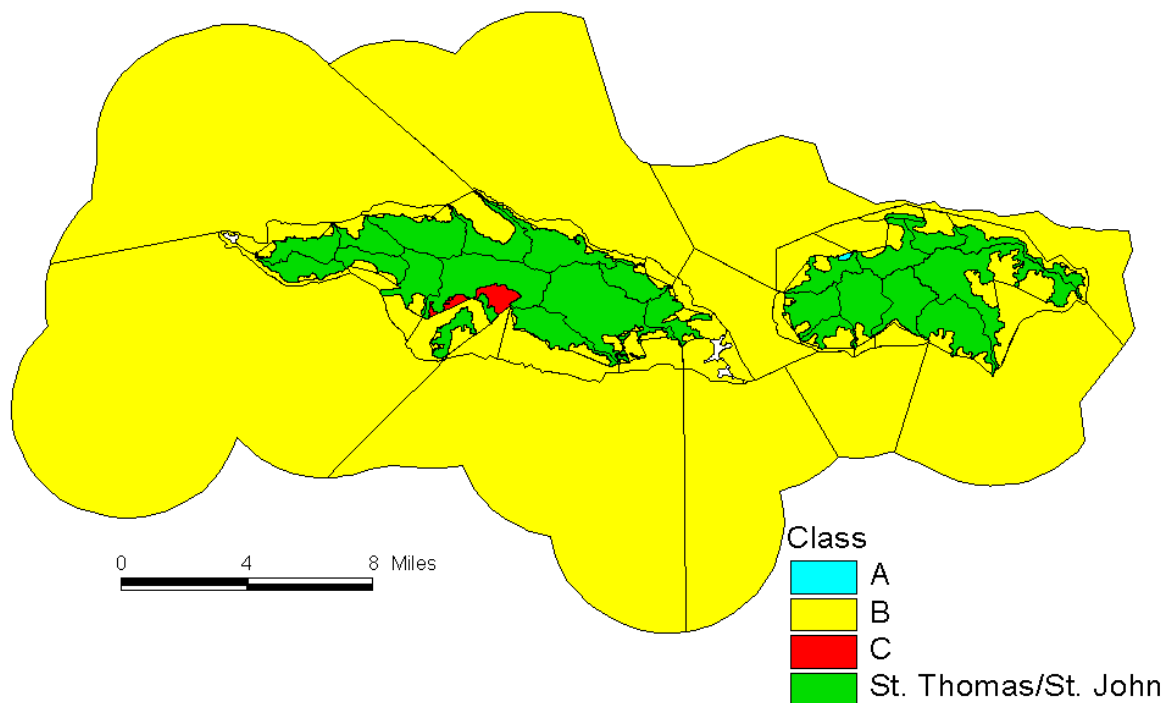
**Table II.B.2 Area of Water Classes by Island**

	St. Croix	St. Thomas	St. John	Total
<b>Class A</b>	4.1172 sq. miles	---	0.0685 sq. miles	4.1857 sq. miles
<b>Class B</b>	244.89 sq. miles	272.95 sq. miles	79.958 sq. miles	597.8 sq. miles
<b>Class C</b>	2.2132 sq. miles	1.0323 sq. miles	---	3.2454 sq. miles
<b>Total</b>	251.2204 sq. miles	273.9823 sq. miles	80.0265 sq. miles	605.23 sq. miles

**Figure II.B.2 Spatial Distribution of St. Croix Coastal Water Classes**



**Figure II.B.3 Spatial Distribution of St. Thomas/St. John Coastal Water Classes**



### **Water Quality Standards to Address Drinking Water Use Attainment**

The 2015 water quality standards do not address drinking water use attainment. Since most of the USVI's drinking water supply comes from seawater purified by flash desalinization or reverse osmosis and from traditional rainwater cisterns (still required for all new construction) most national drinking water issues directed at surface or groundwater resources aren't directly applicable in the Virgin Islands. There are no drinking water source-based quality standards available for organic compounds (volatile, synthetic, herbicides, pesticides and PCB), inorganic compounds, unregulated chemicals, and radiological contaminants that apply to the ocean surrounding the US Virgin Islands because ocean water does not fit the definition of surface water under the Safe Drinking Water Act. Standards do exist under the Virgin Islands Rules and Regulations that demand natural existing conditions for waters designated Class A remain unchanged. All waters of the Virgin Islands should not exceed a geometric mean of 30 enterococci per 100mL or exceed a value of 110 per 100mL more than 10% of the time. The reason that drinking water source-based standards are not yet developed in the US Virgin Islands is that drinking water is generally derived from cisterns holding rainwater at each house or supplemented for public housing and in droughts and other emergencies by desalinization of seawater, as a co-generation by-product of the Virgin Islands Water and Power Authority. The Water and Power Authority in St. Croix maintains some public water supply wells.

Currently, no surface water is used directly for any drinking water supply, although questions have been raised about whether sea water intakes of contaminated water is capable of passing bacterial contamination through the relatively low temperature (60° C) flash desalinization processes.

Therefore, the proposed 2019 water quality standards (expected to be promulgated in mid-2019), include a designated use for Class A, B, C and I waters for those being used currently, or that could be used in the future, as potable water sources. Determinations as to whether waters can be used as potable water sources will involve assessments, including but not limited to, whether, with available treatment, the water from those sources could meet Federal and Territorial drinking water standards, as well as assessments of the physical and/or chemical characteristics of the water sources, and an understanding that such water sources are declared to be public waters belonging to the people of the United States Virgin Islands, subject to appropriation for beneficial use in the manner set forth in 12 V.I.C. § 151 and not otherwise. Waters in all classes will be expected to aim for and attain that use and therefore enhance public health protection.

### **C. Water Pollution Control Program**

Under the Water Pollution Control Grant (pursuant to CWA §106), the V.I. Department of Planning and Natural Resources (DPNR), Division of Environmental Protection (DEP) is entrusted with the task of monitoring the marine waters of the USVI and controlling the discharges into those waters. To accomplish this task the Water Pollution Control (WPC) Program is organized into the following sub-programs:

- TERRITORIAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMITTING AND COMPLIANCE PROGRAM

In FY2009, the WPC Program merged with the Water Quality Management Planning (WQMP) Program. The Water Quality Management Program (WQM) is organized into the following sub-programs (discussed in Section G below):

- AMBIENT MONITORING PROGRAM
- TMDL DEVELOPMENT AND IMPLEMENTATION PROGRAM
- VIRGIN ISLANDS BEACH MONITORING PROGRAM

This section will focus on the one WPC sub-program:

1. The Territorial Pollutant Discharge Elimination System (TPDES) Permitting and Compliance Program, which permits and monitors point source pollutant streams discharged into the waters of the VI, in accordance with the VI Water Quality Standards.

- i. *Territorial Pollutant Discharge Elimination System Program*

The Territorial Pollutant Discharge Elimination System (TPDES) Permitting and Compliance Program is a federally delegated program which permits and regulates the discharge of pollutants from point-sources into waters of the USVI (as defined in 12 V.I.R. & Regs § 184). TPDES Permits are issued in accordance with Title 12, Chapter 7 §184-11 of the Virgin Islands Rules and Regulations, which states that “...no person shall discharge or cause a



discharge of any pollutant without a TPDES permit having been issued to such person...”. TPDES permits require that point source discharges of pollution be monitored by the permittee (facility), and the self-monitoring results are submitted to DPNR-DEP and the United States Environmental Protection Agency (USEPA).

The TPDES Program currently regulates discharges from sewage treatment plant outfalls (both public and private facilities), brine discharges from reverse osmosis, desalination (and other technology) freshwater production plants, industrial facility process water discharges, industrial facility storm water discharge, and storm water discharge from construction sites with over one (1) acre of exposed soils.

DPNR-DEP conducts compliance inspections and monitoring at all facilities that have been issued TPDES permits on an annual basis to ensure compliance. There are three types of compliance inspections conducted at TPDES permitted facilities throughout the Territory: Compliance Sampling Inspections, Compliance Evaluation Inspections and Pump Station Inspections, which are conducted on a quarterly basis at the Territory’s Publicly Owned Treatment Works (POTW).

If a facility is repeatedly found to be in non-compliance with its TPDES permit or has been found to violate the USVI’s Water Quality Standards, enforcement actions may be taken against the facility. The enforcement action usually outlines corrective actions necessary for the facility to return to compliance and, if deemed necessary, fines may also be assessed. Facilities that are enforced against are usually granted the opportunity to work closely with the Department to develop a compliance schedule that the facility will use to achieve compliance.

If necessary or when requested, DPNR-DEP may work closely with the USEPA and the Department of Justice (DOJ) to address major enforcement cases. Cases of this nature included an ongoing case against the Department of Public Works which is currently under Federal Consent Decree for unpermitted discharges caused by sewage treatment infrastructure problems throughout the Territory. In such cases, DEP is called upon to monitor the facility in question and produce supporting inspection reports and other pertinent documentation.

TPDES Program has several components, all under the auspices of the Division of Environmental Protection:

- TPDES Permit Issuance;
- TPDES Compliance Inspections: Compliance Evaluation (CEI), Compliance Sampling (CSI) and Pump Station Inspections (PSI); and
- Enforcement

TPDES Permit Issuance:

Territorial TPDES permits are issued with effluent limitations pertinent to Federal and Local Regulations. The major industrial dischargers, which have permitted discharges of over 1 MGD, include the HOVENSA Oil Refinery, VI Rum Distillery (CVL), St. Croix Renaissance Group, Water and Power Authority in the St. Croix district; the Water and Power Authority in the St. Thomas/St. John district and the Marriott Frenchman's Reef on St. Thomas. The major municipal dischargers include the St. Croix POTW, Mangrove Lagoon POTW and Charlotte Amalie POTW. The TPDES Program also permits a number of minor industrial and municipal facilities.

TPDES Permits are also issued for storm water discharge, both for construction sites that expose one (1) acre or more of soils as well as industrial facilities currently operating within the Territory.

**Table II.C.1.a US Virgin Islands NEW TPDES Permits, FY2016 and 2017 (Issue Date between October 1, 2015 and September 30, 2017).**

TPDES ID	Permit/Permittee Name	Effective Date	Type	District
VIR050015	Heavy Materials LLC	10/9/2015	General Permit Covered Facility	STT/STJ
VIGSA0104	Dry Marina, LLC	3/22/2016	General Permit Covered Facility	STT/STJ
VIPGP0002	Vector Disease Control International	4/4/2016	General Permit Covered Facility	BOTH
VIGSA0106	Magen's Junction Apartments	4/26/2016	General Permit Covered Facility	STT/STJ
VIGSA0141	Orange Grove Subdivision Project - Phase 2	5/9/2016	General Permit Covered Facility	STX
VIGSA0108	Agape Seventh Day Adventist Church	7/22/2016	General Permit Covered Facility	STT/STJ
VIGSA0110	Food City Supermarket	8/18/2016	General Permit Covered Facility	STT/STJ
VIGSA0112	US Citizenship & Immigration Services Building Project	9/14/2016	General Permit Covered Facility	STT/STJ
VIGSA0114	Balbo Construction Inc. Office and Commercial Building Project	2/27/2017	General Permit Covered Facility	STT/STJ
VIGSA0145	Louis E. Brown Project - Phase III	3/30/2017	General Permit Covered Facility	STX
VIGSA0147	Paul E. Joseph Stadium Project	4/19/17	General Permit Covered Facility	STX
VIGSA0149	Hermon Beeston Holdings Project	5/23/2017	General Permit Covered Facility	STT/STJ

VIGSA0118	Turpentine Run Bridge Approaches (VIDPW)	7/7/2017	General Permit Covered Facility	STT/STJ
VIGSA0151	CARLTON SOIL STORAGE PROJECT	7/25/2017	General Permit Covered Facility	STX
VIGSA0120	Virgin Developers, LLC Warehouse Project	8/18/2017	General Permit Covered Facility	STT/STJ

**Table II.C.1.b US Virgin Islands TPDES Permits REISSUANCE, FY2016 and 2017 (Issue Date between October 1, 2015 and September 30, 3017).**

TPDES ID	Permit/Permittee Name	Effective Date	Type	District
VI0000051	WATER & POWER AUTHORITY	10/1/2015	NPDES Individual Permit	STX
VI0040517	ANCHORAGE CONDOMINIUMS	10/1/2015	NPDES Individual Permit	STT/STJ
VI0000305	Buccaneer Hotel	11/1/2015	NPDES Individual Permit	STX
VI0039934	SAPPHIRE BAY CONDOMINIUMS WEST	1/1/2016	NPDES Individual Permit	STT/STJ
VI0040495	BLUEBEARDS BEACH CLUB and VILLAS	1/1/2016	NPDES Individual Permit	STT/STJ
VI0039853	COWPET BAY WEST CONDOMINIUMS	5/1/2016	NPDES Individual Permit	STT/STJ
VI0040401	COMPASS POINT MARINA INC.	5/1/2016	NPDES Individual Permit	STT/STJ
VI0000716	SVB 155 Spring, LLC d/b/a Independent Boat Yard	8/1/2016	NPDES Individual Permit	STT/STJ
VI0020133	VI Waste Management Authority	10/1/2016	NPDES Individual Permit	STT/STJ
VI0039811	VI Waste Management Authority	10/1/2016	NPDES Individual Permit	STT/STJ
VI0039977	VI Waste Management Authority	10/1/2016	NPDES Individual Permit	STT/STJ
VI0040151	Westin St. John, USVI	10/1/2016	NPDES Individual Permit	STT/STJ
VI0040266	VI Waste Management Authority	10/1/2016	NPDES Individual Permit	STT/STJ
VI0040614	MAHOGANY RUN	10/1/2016	NPDES Individual Permit	STT/STJ
VI0080047	Lovenlund Affordable Housing	10/1/2016	NPDES Individual Permit	STT/STJ
VI0080055	Calabash Boom Housing	10/1/2016	NPDES Individual Permit	STT/STJ
VI0020010	PC Puerto Rico LLC dba USVI FUEL SERVICES	11/1/2016	NPDES Individual Permit	STT/STJ
VI0040321	ELYSIAN BEACH RESORT	11/1/2016	NPDES Individual Permit	STT/STJ
VI0040525	LITTLE ST. JAMES ISLAND	11/1/2016	NPDES Individual Permit	STT/STJ
VI0040606	Water Point Estates	11/1/2016	NPDES Individual Permit	STT/STJ
VI0040398	SECRET HARBOR BEACH OWNERS ASS	12/1/2016	NPDES Individual Permit	STT/STJ
VI0040461	SUGAR BAY CLUB AND RESORT	12/1/2016	NPDES Individual Permit	STT/STJ
VI0040029	SAPPHIRE VILLAGE CONDOMINIUM	1/1/2017	NPDES Individual Permit	STT/STJ
VI0001215	Water Bay Village Condominiums	2/1/2017	NPDES Individual Permit	STT/STJ
VI0040738	Lakes Water Service	2/1/2017	NPDES Individual Permit	STT/STJ
VI0080098	Joseph John Markus Trust	2/1/2017	NPDES Individual Permit	STT/STJ

VIR050000	VI Multi-Sector GP for Stormwater Discharges Associated with Industrial	3/1/2017	NPDES Master General Permit	BOTH
VIGSA0116	USVI DEPARTMENT OF PUBLIC WORKS VETERAN'S DRIVE PROJECT	3/17/2017	General Permit Covered Facility	STT/STJ
VI0050334	Carambola Utilities Services, Inc. (CUSI)	6/1/2017	NPDES Individual Permit	STX

***TPDES Compliance Inspections:***

A schedule of compliance evaluation inspections (CEI) and compliance sampling inspections (CSI) is incorporated into the WPC program work-plan. A specialized CEI for POTW Pump Stations, called a Pump Station Inspection (PSI), is performed quarterly to evaluate only the POTW Pump Stations in the Territory. In general, DEP staff conducts a CSI at major facilities and POTWs annually. Facilities with minor permits receive a CEI a minimum of once every 5-year permit cycle, though are often more frequent.

**Table II.C.2 Summary of TPDES Activities, FY2016 - 2017**

<b>FY2016</b>	<b>St. Thomas/St. John</b>	<b>St. Croix</b>
<b>CEI</b>	22	16
<b>CSI</b>	8	4
<b>Construction Stormwater</b>	1	12
<b>Industrial Stormwater</b>	1	7
<b>PSI</b>	4	4
<b>FY2017</b>	<b>St. Thomas/St. John</b>	<b>St. Croix</b>
<b>CEI</b>	19	13
<b>CSI</b>	2	1
<b>Construction Stormwater</b>	4	10
<b>Industrial Stormwater</b>	2	2
<b>PSI</b>	3	3

**Legend**

C-Compliance Evaluation Inspection  
S-Compliance Sampling Inspection  
AOE-Affidavit of Exemption  
PSI-Pump Station Inspections  
MMI-Multi-Media Inspection  
ECS-Enforcement Case Support

**Table II.C.3 Supplementary POTW Inspections: TPDES Activities, FY2016 - 2017****FY2016 and FY2017**

Facility Name	Permit #	Type	Quarter
St. Thomas Pump Stations	VI0039811 VI0039977 VI0020044 VI0002003 VI0020133	PSI (C)	1 <sup>st</sup> - 4 <sup>th</sup>
St. John Pump Stations	VI0040835 VI0040266	PSI (C)	
St. Croix Pump Station	VI0020036	PSI (C)	

*ii. Enforcement Actions*

Violations within the TPDES program can come from non-compliance with permitted effluent limits, or failure to report monitoring as required by the permit. This includes any special conditions contained within the permit. For example, St. Croix POTW permit requires the permittee to take several specific actions in the event of a bypass. Violations issued by DEP during this reporting period were:

**Table II.C.4 Summary of TPDES Enforcement Activities, FY 2016 - 2017****FY2016**

No.	EA Number	Facility	Status
1	VI-STX-WPC-01-16	Carden Beach	A Notice of Violation with an assessed penalty of \$5000.00 was served for failing to submit DMRs. The NOV was settled for a stipulated penalty of \$5,000 and missing DMRs were subsequently submitted to DPNR.
2	VI-STX-WPC-02-16	Coakley Bay Condos Association	An Administrative Order was served for permit limit exceedances. The permittees completed all orders as required.
3	VI-STX-WPC-03-16	Reef Associates	A Notice of Violation with an assessed penalty of \$13,000.00 was served for failure to submit DMRs and permit limit exceedances. The NOV was settled for a stipulated penalty of \$3,400.
4	VI-STX-WPC-04-16	Interstate Realty Management (Harborview Apts)	An Administrative Order was served for improper operation and maintenance. The facility completed all orders as required and performed necessary repairs and corrections.

No.	EA Number	Facility	Status
5	VI-STX-WPC-05-16	VI WAPA Richmond Facility	A Notice of Violation with a penalty of \$93,394 was served for: (i) illegal discharge of pollutants and (ii) failure to properly operate and maintain waste water treatment equipment. Settlement pending.
6	VI-STX-WPC-06-16	Aggregate Inc	A Notice of Violation with a penalty of \$136,498.00 was served on Aggregate following no response from a previous Administrative Order. Aggregate's violations included, (i) inadequate recordkeeping, (ii) failure to conduct inspections required by the VI Multi-Sector General Permit, (iii) failure to identify stormwater outfalls, (iv) failure to maintain adequate anti-tracking measures, (v) failure to address fugitive dust from rock crushing activities, and (vi) inadequate storage and management of used oil. A settlement conference was held, but a follow up meeting shall be scheduled before a settlement agreement will be reached.
7	VI-STX-WPC-11-16	No. 9 Shoys	A Notice of Violation with a penalty of \$10,570.00 was served for: (i) failure to submit renewal application on time and (ii) failure to submit DMRs. A settlement conference was held, but a follow up meeting shall be scheduled before a settlement agreement will be reached.
8	VI-STT-WPC-01-16	Margaritaville Vacation Club	A Notice of Violation with a penalty of \$49,500.00 was served for: (i) illegal discharge of pollutants into waters of the USVI and (ii) failure to properly install and maintain BMPs. An Informal Settlement Conference was held on September 16, 2016. A proposed Settlement Agreement is being submitted to the Commissioner for approval.
9	VI-STT-WPC-02-16	Caneel Bay	A Notice of Violation with a penalty of \$63,264.80 was served for: (i) failure to maintain records (ii) failure to submit DMRs and (iii) improper operation and maintenance. An Informal Settlement Conference was held on May 24, 2016. A Settlement Agreement was issued on September 21, 2016. The NOV was settled for a stipulated penalty of \$38,500.
10	VI-STT-WPC-03-16	Frenchman's Reef	A Notice of Violation with a penalty of \$28,697.90 was served for: (i) failure to maintain records (ii) failure to submit DMRs (iii) illegal discharge of pollutants into waters of the USVI and (iv) improper operation and maintenance. A Settlement Agreement was entered on July 6, 2016 for a stipulated penalty of \$23,997.00.
11	VI-STT-WPC-04-16	Donoe Apartments	A Notice of Violation with a penalty of \$70,999.00 was served for: (i) failure to install and maintain BMPs (ii) failure to comply with permit conditions (iii) failure to update project SWPPP and (iv) failure to implement corrective actions to address deficiencies. An Informal Settlement Conference is scheduled for January 9, 2017.
12	VI-STT-WPC-05-16	Cowpet Bay West Condos	A Notice of Violation with a penalty of \$29,240.00 was served for: (i) failure to submit renewal application on time (ii) failure to submit DMRs (iii) discharge of pollutants without a permit (iv) failure to have a current APC permit and (iv) failure to conduct required sampling. The NOV was settled for a stipulated penalty of \$11,696.00.

No.	EA Number	Facility	Status
13	VI-STT-WPC-06-16	Coral World	A Notice of Violation with a penalty of \$40,800.00 was served for: (i) permit limit exceedances and (ii) failure to submit DMRs. The NOV was settled for a stipulated penalty of \$28,400.00.
14	VI-STT-WPC-07-16	Sapphire Village Condos Association	A Notice of Violation with a penalty of \$55,483.50 was served for: (i) failure to submit a Corrective Action Plan (ii) failure to submit DMRs (iii) permit limit exceedances and (iv) improper operation and maintenance. A Settlement Conference was held on October 27, 2016 and reconvened on December 7, 2016 for further discussions. A proposed settlement agreement is being considered.

## FY2017

No.	EA Number	Facility	Date Served	Status
1	<u>VI-STT-WPC-001-17</u>	Mangrove Lagoon Administrative Order and Order for Corrective Action	12/16/2016	VIWMA submitted a CAP and response letter to the served AO. CAP addressed all orders and AO was closed.
2	<u>VI-STX-WPC-01-17</u>	Carambola Utilities Services, Inc NOV Order for Corrective Action, Penalty Assessment and Hearing Op	12/9/2016	NOVA served with penalty. After negotiations, a reduced penalty was proposed, and CUSI submitted tax documents to prove hardship. ABEL calculations were made, determined that CUSI could pay. A follow up meeting to require payment is forthcoming.
3	<u>VI-STX-WPC-02-17</u>	VI National Guard NOV Order for Corrective Action, Civil Penalty Assessment and Hearing Opportunity	1/17/2017	Respondent filed an Answer to the NOV. Case will be scheduled for settlement conference. They also submitted DMRs as required.
4	<u>VI-STX-WPC-03-17</u>	VIWMA Administrative Order and Order For Corrective Action	3/13/2017	VIWMA submitted a CAP and response letter to the served AO. CAP addressed all orders and AO was closed.
5	<u>VI-STX-WPC-04-17</u>	VIWMA Catherine's Rest AO and Administrative Order For Corrective Action	4/18/2017	VIWMA submitted a CAP and response letter to the served AO. CAP is under review.
6	<u>VI-STX-WPC-05-17</u>	VIWMA La Grange Emergency Administrative Order and Order for Corrective Action	4/18/2017	VIWMA submitted a CAP and response letter to the served AO. CAP is under review.
7	<u>VI-STX-WPC-06-17</u>	VIWMA Emergency Administrative Order and Order For Corrective Action	6/26/2017	VIWMA submitted a CAP and response letter to the served AO. CAP is under review.

#### **D. Non-Point Source Program**

This section of the US Virgin Islands Integrated Water Quality Monitoring and Assessment Report provides an assessment of the water quality conditions based on the implementation of the Non-Point Source Management Program for the period covering fiscal years 2014 and 2015 (October 1, 2013 through September 30, 2015).

The Non-Point Source (NPS) Management Program goals for the reporting period remained consistent with that of previous years: to protect ground and coastal waters by mitigating both land and marine nonpoint pollution sources. Non-point source pollution, in the form of polluted runoff, impairs more water bodies than any other source of pollution in the Virgin Islands. Non-point source pollution in the Virgin Islands is caused by rainfall moving over and through the ground. As runoff moves, it picks up and carries away both natural pollutants and pollutants resulting from human activities. These pollutants include sediments, nutrients, pesticides, and toxic substances such as hydrocarbons and heavy metals. Eventually these pollutants are deposited in wetlands, coastal waters and ground water.

There are numerous problems associated with non-point source pollution. Two of the major non-point source problems affecting the Virgin Islanders are sedimentation and bacterial contamination

- Sedimentation occurs when soil is eroded from the land surface, such as at construction sites, and deposited onto the land surface or into coastal water bodies. Sedimentation results in problems such as habitat losses and marine life mortality.
- Bacterial contamination from sources such as failed septic systems, runoff from animal operations, and sewage discharged from boats can cause serious threats to human health

To facilitate discussion, this report for the NPS program is divided into the following two parts:

Part I: Program Activity Measures

Part II: Program Accomplishments – summarizes the successes of the program

- Program Management
- Earth Change permitting program
- Educational Outreach
- Travel and Training
- Reporting



## PART I: NPS PROGRAM ACTIVITY MEASURES

The NPS Program Activity Measures are summarized below:

- 1. Waterbodies identified by States (in 2000 or subsequent years) as being primarily nonpoint source-impaired that will be partially or fully restored (cumulative).*

There are twenty-four assessment units identified with established total maximum daily loads (TMDL) as listed below:

**Table II.D.1 TMDLs Established for the USVI due Primarily to Non-Point Sources.**

<b><u>TMDL Water body</u></b>	<b><u>AU in TMDL</u></b>	<b><u>TMDL Impairment</u></b>	<b><u>TMDL Established</u></b>
Benner Bay	VI-STT-33	Dissolved Oxygen	Sept 30, 2003
Benner Bay Lagoon	VI-STT-34	Dissolved Oxygen	Sept 30, 2003
Mangrove Lagoon	VI-STT-35	Biochemical Oxygen Demand	Sept 30, 2003
Salt River Bay	VI-STC-18	Dissolved Oxygen	Sept 24, 2004
Salt River Lagoon, Marina	VI-STC-16	Dissolved Oxygen	Sept 24, 2004
Salt River Lagoon, Sugar Bay	VI-STC-17	Dissolved Oxygen	Sept 24, 2004
Great Cruz Bay, St. John	VI-STJ-28	Oil & Grease	Sept 29, 2005
Red Hook Bay, St. Thomas	VI-STT-24	Oil & Grease, Biochemical Oxygen Demand	Sept 29, 2005
Hassel Island at Haulover Cut to Regis Point, St. Thomas	VI-STT-47	Oil & Grease	Sept 29, 2005
Mangrove Lagoon, St. Thomas	VI-STT-35	Fecal Coliform	Sept 29, 2005
Benner Bay, St. Thomas	VI-STT-33	Fecal Coliform	Sept 29, 2005
Magens Bay, St. Thomas	VI-STT-10	Fecal Coliform	Sept 29, 2005
Vessup Bay, St. Thomas	VI-STT-23	Fecal Coliform, Biochemical Oxygen Demand	Sept 29, 2005
Hassel Island at Haulover Cut to Regis Point, St. Thomas	VI-STT-47	Fecal Coliform	Sept 19, 2006

North Shore St. Croix Assessment Units	VI-STC-26, VI-STC-27, VI-STC-24, VI-STC-25, VI-STC-23,	Phosphorus, Biological Oxygen Demand, Fecal Coliform, Sediment Oxygen Demand, Total Suspended Solids, Enterococcus Bacteria	Sept 26, 2007
St. Thomas Harbor Assessment Units	VI-STT-49, VI-STT-50, VI-STT-45, VI-STT-47, VI-STT-51, VI-STT-39, VI-STT-40, VI-STT-46, VI-STT-43, VI-STT-41, VI-STT-44	Biological Oxygen Demand, Enterococcus Bacteria, Fecal Coliform and Sediment Oxygen Demand	September 03, 2010

- No TMDLs were established for FY2016 or FY2017

***2. Reduction in amount of total sediment loadings (in tons).***

Not measured and quantified – currently revising the multi-year monitoring strategy to assess sediment reductions. A contract was let with Tetra Tech Inc, of Fairfax, Virginia for the characterization of guts (intermittent streams), within watersheds feeding a TMDL waterbody, in relation to their location, daily flow, and condition (Manning’s roughness coefficient).

***3. Reduction in amount of total nitrogen loadings (in pounds).***

Not measured and quantified – currently revising the multi-year monitoring strategy to assess nitrogen reductions. A contract is ongoing with Tetra Tech Inc, of Fairfax, Virginia for the characterization of land use coefficients for use in determining NPS pollution loadings for parameters such as Biological Oxygen demand, nutrients (particularly nitrogen) sediment, bacteria, oil/grease, and impervious surfaces.

***4. Reduction in amount of total phosphorus loadings (in pounds).***

Not measured and quantified – currently developing a multi-year monitoring strategy to assess load reductions. See discussions for items 2 and 3 above.

***5. Number of watershed-based plans (and water miles/acres covered), supported under state Nonpoint Source Management Programs since the beginning of FY’02 that have been substantially implemented.***

Two watershed-based plans have been substantially implemented.

Fish Bay Watershed Management Plan, St. John) - 4.2 gut miles (water miles) covering 1,487.6 acres. The Fish Bay watershed is experiencing rapid residential development and corresponding impacts from uncontrolled erosion, sediment and stormwater. VI RC&D was contracted by the V.I. Department of Planning & Natural Resources Coastal Zone Management Program (DPNR-CZM) to assist in designing and implementing best management practices (BMPs) to mitigate pollution in the Fish Bay watershed. The primary goal of the project was to develop a Comprehensive Road Stabilization Plan with Best Management Practices.



Fish Bay: retaining wall and subdivision road.



Fish Bay: sediment damage.

The Coral Bay Watershed Management Plan was finalized in March 2008 through a collaborative effort of multiple local and Federal agencies, the Coral Bay Community Council (CBCC), and many local land owners and developers -- to serve as a guide for developing

ways to protect Coral Bay from sediment and stormwater pollution. The plan provides a comprehensive set of objectives and actions that address land use planning, protection and restoration of sensitive lands and aquatic buffers, better site design and construction techniques, and effective stormwater management. Please note that the selected example sites are representative; there are many more sites in Coral Bay that deserve equal attention. This plan document is being used now as a helpful outline to undertake detailed actual multi-agency and community discussions to plan activities and prioritize actions on achieving the objectives. The EPA CARE grant being received by CBCC for 2009 and 2010 will bring stormwater expertise to Coral Bay expressly to implement the plan. The plan can be reviewed at <http://www.coralbaycommunitycouncil.org/watershed.htm>. The Coral Bay watershed is

- 5th largest watershed in VI: 3003 ac.
- Fastest developing area in VI
- 79% growth rate 1990-2000 Census
- 750+ residents in 2000
- 5% developed – Huge potential
- Area of Particular Concern
- Coral Reef National Monument
- Longest V.I. fringing mangrove
- 100's of acres of wetlands, coral reefs and seagrass beds



**Coral Bay: sediment damage.**

## **PART II: PROGRAM ACCOMPLISHMENTS**

The NPS program can be subdivided into three sections:

1. Program Management to include development of total maximum daily loads (TMDLs) implementation plans and restoration plans for Virgin Island's impaired waters; wetlands management, implementation of the Stormwater program; GIS capacity building, etc.
2. Section 319(h) nonpoint source control grants program; performs water quality restoration and educational projects
3. Earth Change permitting program in the second tier of the coastal zone.

### **PROGRAM MANAGEMENT**

One of the major activities to be undertaken was to attach resources and timelines to the approved 2014-2015 work plan in order to ensure all NPS Tasks and Subtasks were addressed and reported. NPS identified stakeholders such as the St. Croix Environmental Association (SEA), the Environmental Association of St. Thomas (EAST), the Coral Bay Council (CBC), The Nature Conservancy (TNC), and Virgin Islands Conservation Society (VICS) in order to formalize partnerships with local entities. Additionally, governmental agencies/programs such as USDA-NRCS, DPNR-DEP, DPNR-Permits, DEP-Water Quality, DEP-Water Pollution, DPNR-Flood Plain Management, DPNR-CZM, Caribbean Environmental Protection Division CEPD and National Oceanic Atmospheric Administration (NOAA) were also invited for the purpose of integrating NPS goals with other programs by membership in the NPS Pollution Steering Committee. There are currently 25 committee members and we are still recruiting. Meetings were held in the Third and Fourth Quarter to discuss the direction, goals and by-laws development for the new Committee.

The reconvened NPS Pollution Committee discussed strategic approaches and adaptive management principals in order to further achieve and maintain water quality standards. The Committee determined that the goal going forward will be the reviewing guidelines and policies in accordance with the approved work plan, and grant agreements, update the Environmental Handbook, and consider developing rules and regulations to give more enforcement authority within guidelines and policies to responsible agencies. Through the Environmental Handbook the NPS Program will update the Management Plan and help to prevent further non-point source pollution, in the form of polluted runoff, which impairs more water bodies than any other source of pollution in the Virgin Islands. Staff was successful in obtaining a conditional approval on a \$50,000 VIDPNR Nonpoint Source Implementation Grant to revise the U.S. Virgin Islands Environmental Handbook and Design Manual.

#### **A. Total Maximum Daily Load data development and gut characterization**

The project by TetraTech, Inc. continued in FY14. The objectives are as follows:

- a). Characterization of land use coefficients for use in determining non-point source pollution loadings for parameters such as Biological Oxygen Demand, nutrients (particularly nitrogen), sediment, bacteria, oil/grease, and impervious surfaces
- b). Characterization of guts within watersheds feeding a TMDL waterbody in relation to their location, daily flow, and condition (Manning's roughness coefficient).

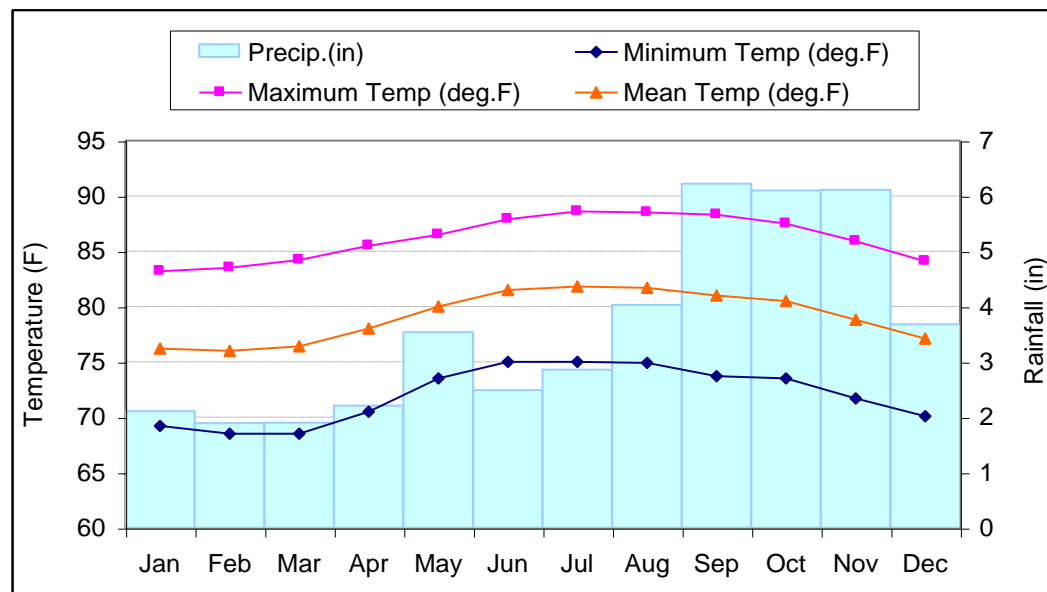


The first phase of this project entails a multi-faceted approach to allow for future characterization of non-point pollutant loading coefficients. Several factors that drive pollutant loading regimes were investigated based on available data and literature, and initial recommendations for additional data collection have been developed in anticipation of further dialogue with VIDPNR staff. Factors that drive pollutant loading and were investigated during this phase of work include precipitation distribution information, and in-stream watershed monitoring data. The first section of this memorandum provides our initial assessment of these datasets. The second section of this memorandum discusses our recommendations for future monitoring.

### Precipitation Estimation and In-Stream Monitoring Data

The climate of the Lesser Antilles region is dominated by the easterly trade winds. This maritime tropical region is characterized by fair weather, steady winds, and slight but regular annual, seasonal, and diurnal ranges in temperature. Rain-producing weather systems typically move into the Virgin Islands from the east in summer and from the northwest in winter. These systems tend to produce rain over land when moist, tropical air is forced upward by an island's higher land elevations. This causes rainfall trends in the Virgin Islands of wet-to-dry patterns from the west end to the east end of the islands. For this reason, the spatial variation in rainfall is large, and precipitation measured at a given station may not accurately represent rainfall even a short distance away.

Annual rainfall amounts on St. Croix, for example, differ with respect to physiographic region, and to a lesser extent based on the season. Seasonal rainfall and temperature data collected near Christiansted are shown in Figure 1. The period from September to November is generally when more rainfall occurs, but topographic setting is a more significant variable with respect to rainfall on St. Croix.



**Figure 1.** Monthly temperature and precipitation averages observed at the Bethlehem Upper New Works station near Christiansted, St. Croix.

There are four stations in the USVI that monitor at least one meteorological parameter. Two of them monitor precipitation; Bethlehem Upper New Works on St. Croix (Figure 2), and Caneel Bay Plantation on St. John (Figure 3). Surface Airways data (atmospheric pressure, temperature, humidity, cloud cover, wind direction and speed) are collected in Cyril E. King Airport on St. Thomas (Figure 4) and at Christiansted Airport on St. Croix (Figure 2).

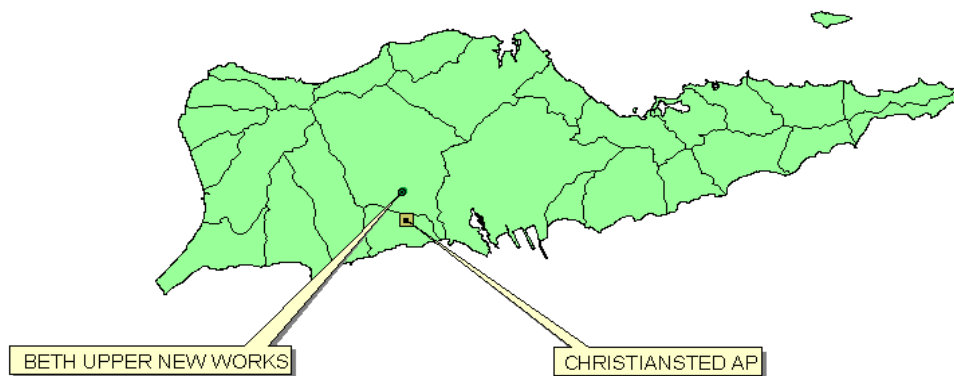


Figure 2. **Meteorological stations in St. Croix, USVI**

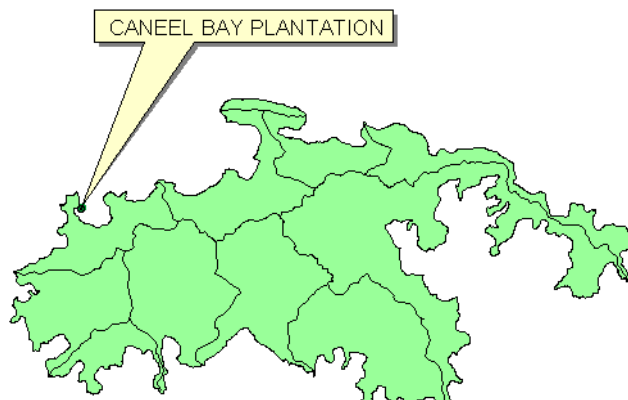


Figure 3. **Meteorological stations in St. John, USVI**

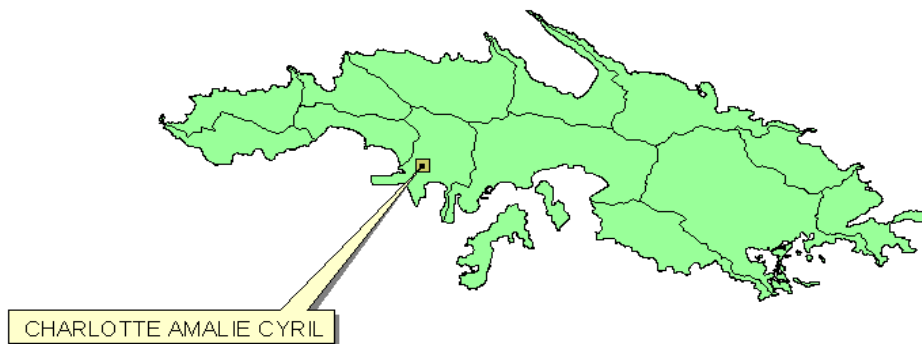


Figure 4. **Meteorological stations in St. Thomas, USVI**

In an effort to better characterize rainfall patterns in the USVI, VIDPNR has requested that Tt conduct analyses to estimate variable precipitation intensity and time offsets across St. Croix, St. Thomas, and St. John. Significant datasets that were used to derive intensity distribution were obtained from local publications and digital elevation models of the islands.

### ***Rainfall Intensity***

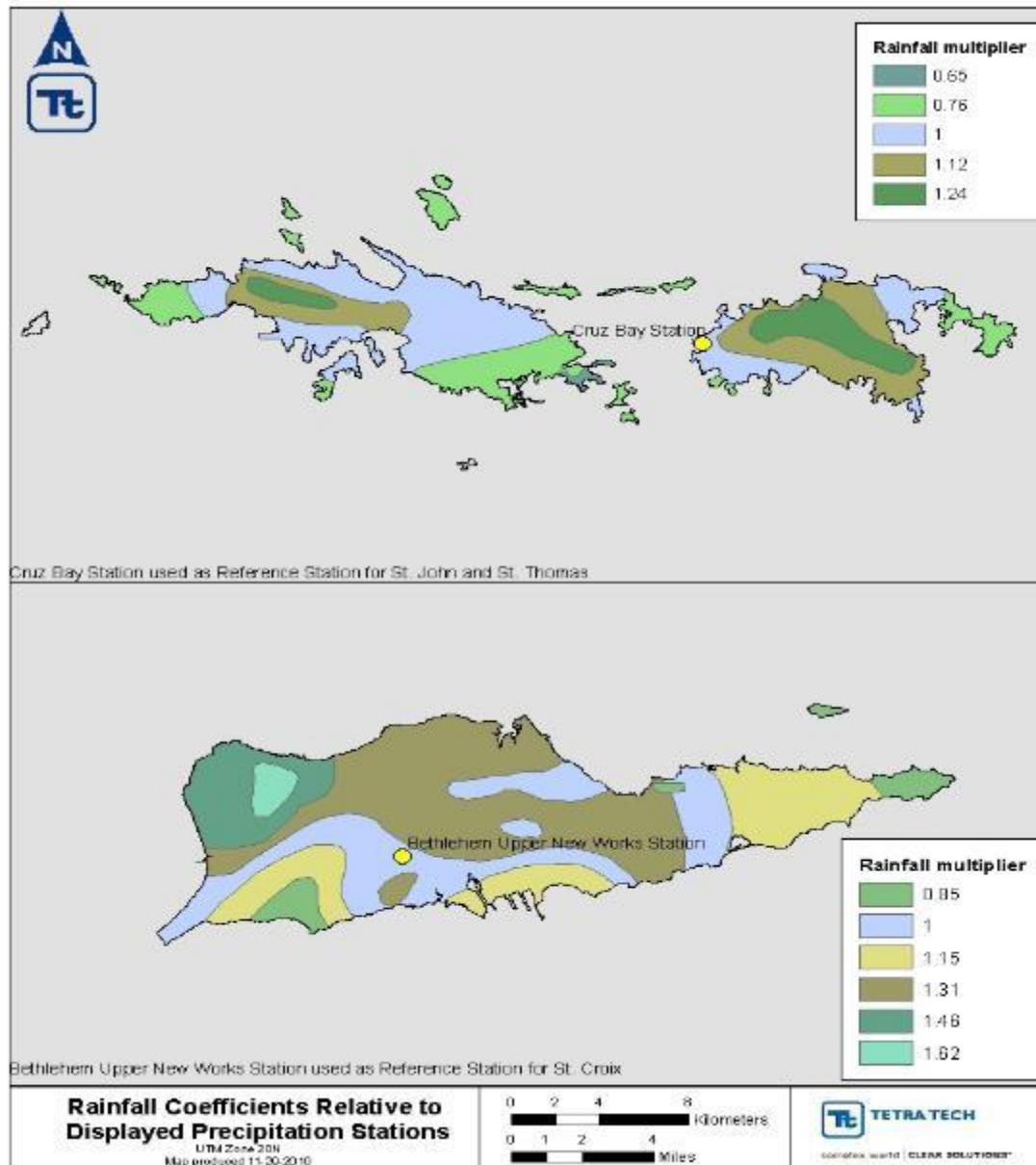
A local assessment of typical annual precipitation patterns was developed by the Department of Conservation and Cultural Affairs (DCCA)/ Fish and Wildlife Service in the 1970s: (<http://www.fw.dpnr.gov.vi/education/FactSheets/PDFs/Climatology.pdf>). Fact Sheet #2 was obtained from a series devoted to public awareness regarding the USVI, and the fact sheet was digitized into a geographic information system by Tt. This precipitation distribution was incorporated with other GIS layers Tt maintains in-house. This spatial product was then used to derive relative precipitation intensities for each island, based on the location of existing precipitation stations. Intensity multipliers were assigned to each intensity group across the islands (see Figure 5).

The ranges provided by the original DCCA data were then translated into relative intensity values. For example, when the Bethlehem Upper New Works precipitation station is overlaid with the digitized rainfall distribution map, its location falls within the 30-35” annual precipitation zone. Using a relative weighting method, all areas on the island of St. Croix were within the 30-35” zone were assumed to experience the same rainfall intensity as the Bethlehem Upper New Works station.

For other intensity zones, a multiplier was calculated relative to the 30-35” zone. The multiplier was derived by using the average of each of the precipitation ranges. For example, the value for the 30-35” precipitation zone becomes 32.5” (the nominal precipitation). Because the precipitation station is located in the 30-35” zone (or the 32.5” nominal precipitation), its coefficient is 1, which indicates that the precipitation estimate for all areas within that zone should multiply the rainfall observed at the station by 1.



Using the same method as above, the 35-40" zone has a nominal precipitation of 37.5", and so on for the other zones. Precipitation coefficients were derived for the other zones by dividing the nominal precipitation in that zone by the station's nominal precipitation. So, to derive the rainfall coefficient for the 35-40" zone, 37.5 was divided by 32.5 to obtain 1.15. Therefore, to estimate rainfall amounts for the 35-40" zone, the observed precipitation from Bethlehem Upper New Works can be multiplied by 1.15. Precipitation coefficients for all areas in the USVI are shown in Figure 5. Once the rainfall intensity was mapped for the USVI, a time offset for rain events was developed.



**Figure 5.** Intensity Multipliers & Meteorological stations in USVI.

### ***Rainfall Time Offsets***

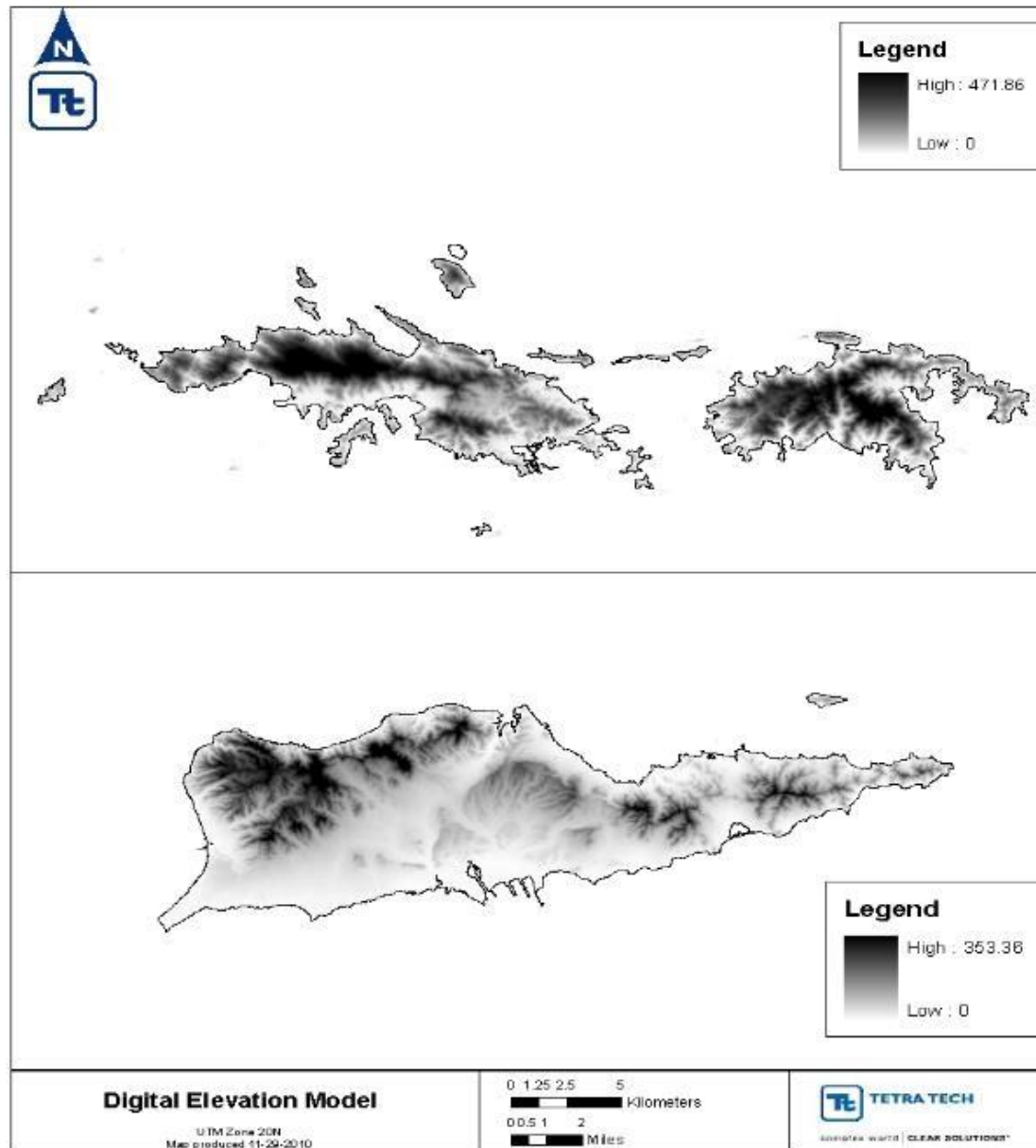
Due to the intense nature of rainfall events in the Lesser Antilles region, flashy characteristics of the guts that drain the USVI, and implications of discharges to tidal waters, the timing of rainfall events becomes critical in the estimation of fate and transport of pollutants. The morphology of St. Croix, St. Thomas, and St. John effects the distribution of rainfall on these islands, as discussed in the previous section. The mountainous terrain also impedes the movement of squall lines across the island, making travel time nonlinear. Morphology is a significant factor in calculating offsets, as systems must rise over the mountainous sections of the islands before arrival at other locations. As discussed previously, the climate of the Lesser Antilles is relatively stable, with northeasterly tradewinds dominating. Naturally, all squall lines will not have the same characteristics in terms of approach and speed. However, this dominant weather pattern was selected as a model for developing time offsets for the USVI. A northeast wind of 6 km/h was used, as it is the most common wind vector experienced in the USVI throughout the year.

Morphology data was obtained in the form of high-resolution, 30-meter interval USGS Digital Elevation Model data for all three islands (see Figure 6). DEM Data for St. Croix, St. Thomas, and St. John were overlaid with a 2km grid oriented in the northeast direction to coincide with the dominant wind vector. The transects spaced 2km apart were used to extract profiles from the DEM dataset, which produced a linear distance and a profile distance (see Figure 7). The linear distance is the straight line distance, whereas the profile distance is the distance traveled over the profile. The profile distance will always be equal to or greater than the linear distance.

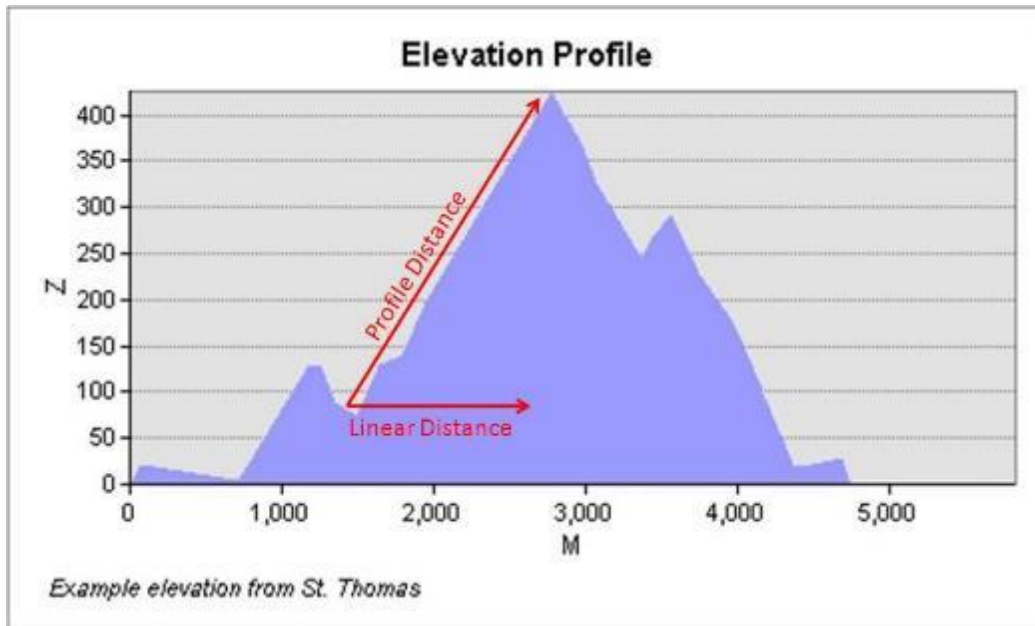
For each 2km transect interval, the coincident profile distance was plotted. This provided a gridded array of points over the islands that could be contoured and related to a time offset. The profiled distance (see Figure 7) was used to calculate the linear velocity of rain events, assuming the events are moving at 6km/h. For example, an event would cover a linear distance of 6km in one hour. But if the 6km distance is characterized by mountainous terrain, the profile distance would be greater, and it would take a longer period of time to travel the 6km. If the 6km of linear distance is characterized by a profile distance of 8km, then a storm traveling at 6km/h would complete the linear distance in 1 hour and 20 minutes.

Figure 8 shows the 2km linear distance grid overlayed with the island boundaries. The datum for St. John and St. Thomas was created to the northeast of St. John at the origin of the prevailing wind. Transects were drawn to the southwest from this datum at 2km intervals. As the transects intersect the land areas (represented by the DEM dataset), the linear and profile distances diverge. For example, Figure 8 identifies one of the transects covering St. John near the midpoint of the island. After traveling 2 grid cells (4km), the profile distance was 4.1km. This represents the elevation change being encountered in the DEM dataset. Likewise, at 6km linear distance, 6.17km has been traveled in profile distance. Points indicating the profile distance were developed to cover the islands prior to contouring.

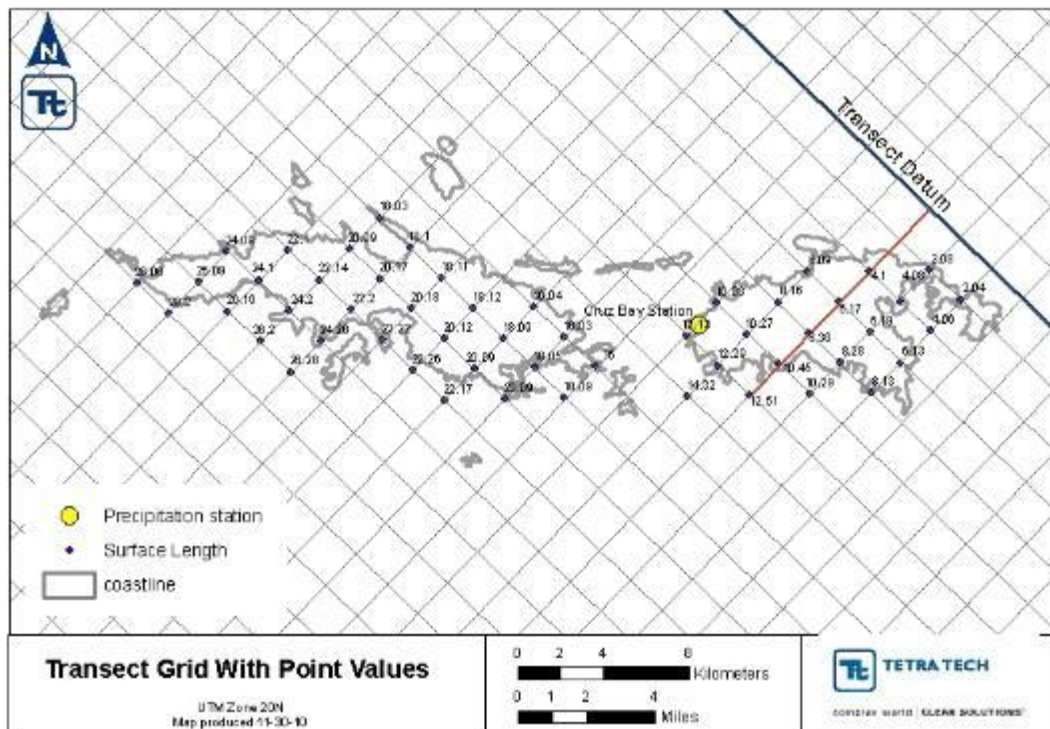
The point data were then contoured using the Spatial Analyst extension in ArcGIS. Contour lines were generated at 2km intervals, where, assuming a 6km/h wind speed from the northeast, the travel time would be 20 minutes between contour lines. The time offsets were linked to precipitation stations, so that offsets could theoretically be applied to observed data as long as the event has the characteristics that were assumed. The St. Thomas and St. John offsets are in relation to the precipitation station at Cruz Bay, St. John, while the St. Croix offsets are linked to the Bethlehem Upper New Works precipitation station. The time offsets for all three islands are shown in Figure 9.



**Figure 6.** Digital Elevation Model (in meters) developed for St. Croix, St. Thomas, and St. John.

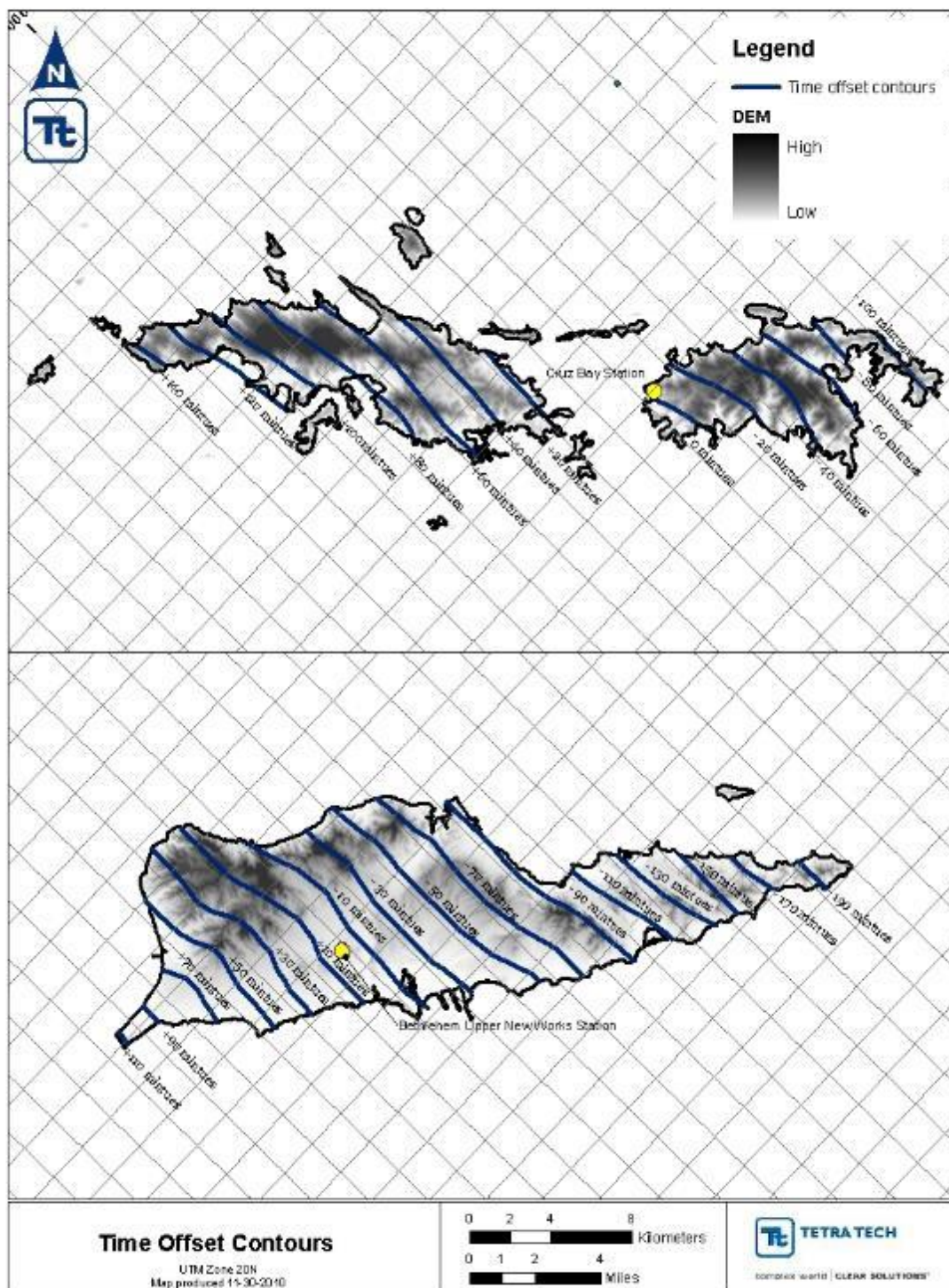


**Figure 7.** Elevation profile illustrating linear and profile distances. Distance and elevation are in meters.



**Figure 8.** Linear distance vs. profile distance relationship.





**Figure 9.** Time offset contours developed for St. Croix, St. Thomas, and St. John relative to local meteorological stations.  
*In-Stream Monitoring Data*

Watershed monitoring data was reviewed in an effort to provide an inventory of existing data that could be used to estimate loading rates from watershed sources of pollutants. USGS maintains five watershed stations that provide surface water quality data. All of these stations are located on St. Thomas and have been intermittently monitored between 1967 and 1999. Table 1 identifies that time periods for which data are available for each of the stations, and Table 2 identifies the number of samples and constituents tested for each station.

**Table 1.** Temporal data availability for watershed stations in the USVI.

Station ID	Station Name	1960s	1970s	1980s	1990s	2000s
<a href="#">50262000</a>	UNNAMED CREEK AT BENNER HILL, ST. THOMAS USVI					
<a href="#">50265500</a>	UNNAMED CREEK AT RED HOOK, ST. THOMAS USVI					
<a href="#">50272000</a>	HOFFMAN POND AT HOFFMAN, ST. THOMAS USVI					
<a href="#">50274000</a>	TURPENTINE RUN AT MT. ZION, ST. THOMAS USVI					
<a href="#">50276000</a>	TURPENTINE RUN AT MARIENDAL, ST. THOMAS USVI					

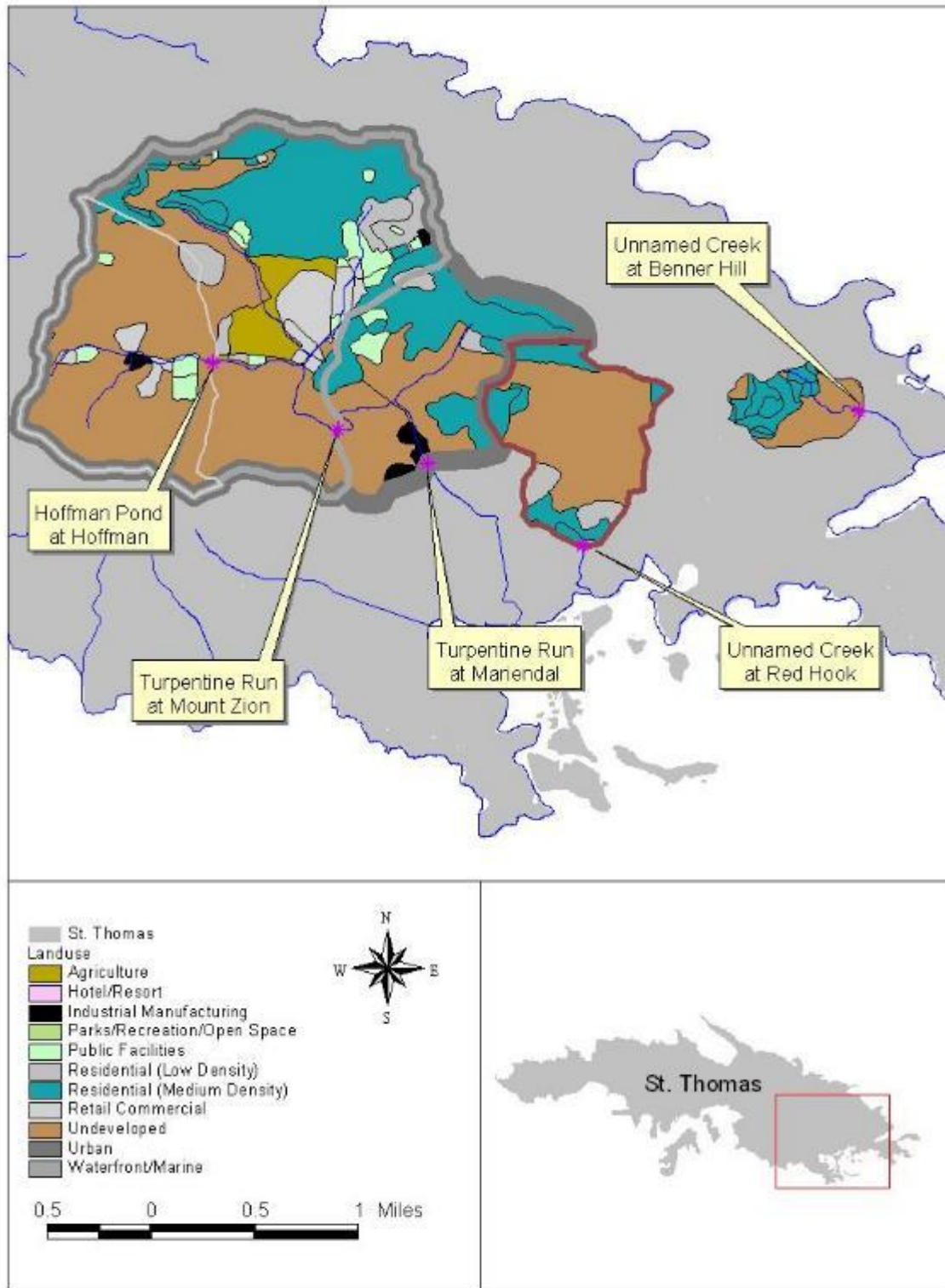
**Table 2.** Water quality data availability for watershed stations in the USVI.

Station ID	Station Name	Flow, ft <sup>3</sup> /s	N/P*	DO	BOD	pH	Solids	Fecal coliform	Specific conductance
<a href="#">50262000</a>	UNNAMED CREEK AT BENNER HILL, ST. THOMAS USVI	1	-	1	1	1	1	1	1
<a href="#">50265500</a>	UNNAMED CREEK AT RED HOOK, ST. THOMAS USVI	1	-	1	1	1	1	1	1
<a href="#">50272000</a>	HOFFMAN POND AT HOFFMAN, ST. THOMAS USVI	-	4-7	-	-	7	7	-	7
<a href="#">50274000</a>	TURPENTINE RUN AT MT. ZION, ST. THOMAS USVI	2	3-6			7	7	-	7
<a href="#">50276000</a>	TURPENTINE RUN AT MARIENDAL, ST. THOMAS USVI	2	-	2	3	2	3	2	2

\*A different nutrient suite was analyzed for each site visit. Therefore, a range is provided for a sample total to identify the range of data collection for the suite of nutrients.

The inventory of water quality data collected by the USGS in USVI watersheds is not extensive and is probably not sufficient for source assessment at the level of detail VIDPNR has requested. The USGS has conducted 18 sampling events for the 5 stations, which is not a sufficient dataset considering the events are spread over 43 years. In addition, only 4 of these sampling events occurred in the last 15 years. It is likely that the characteristics of the areas (e.g. land use, land cover) draining to these stations have changed significantly during this time, thus changing the loading rates. However, Tt also investigated the characteristics upstream of the monitoring stations to assess their suitability for future monitoring to derive land use loading coefficients as requested by VIDPNR.

Figure 10 shows the land use distribution upstream of the 5 USGS water quality monitoring stations, and the distributions are tabulated in Table 3 for the Turpentine Run system and Table 4 for the unnamed systems. The stations along Turpentine Run include (from upstream to downstream) Hoffman Pond, Turpentine Run at Mt. Zion, and Turpentine Run at Mariendal. The two additional stations are located on unnamed creeks that are separate from each other and from Turpentine Run.



**Figure 10.** Land use distribution upstream of existing USGS water quality monitoring stations.

**Table 3.** Land use distribution upstream of existing USGS water quality monitoring stations in the Turpentine Run System.

Turpentine Run System	Hoffman Pond at Hoffman; Upstream Landuse		
	Landuse	Area (m <sup>2</sup> )	Percentage
	Hotel/Resort	5,839	0.28%
	Industrial Manufacturing	16,469	0.78%
	Public Facilities	88,585	4.21%
	Residential (High Density)	28,912	1.38%
	Residential (Low Density)	35,278	1.68%
	Residential (Medium Density)	25,749	1.22%
	Retail Commercial	86,130	4.10%
	Undeveloped	1,815,417	86.35%
	sum:	2,102,379	100.00%
	Turpentine Run at Mt. Zion; Upstream Landuse		
	Landuse	Area (m <sup>2</sup> )	Percentage
	Agriculture	260,948	4.49%
	Hotel/Resort	5,839	0.10%
	Industrial Manufacturing	25,805	0.44%
	Public Facilities	243,904	4.20%
	Residential (High Density)	182,596	3.14%
	Residential (Low Density)	177,503	3.06%
	Residential (Medium Density)	1,426,725	24.56%
	Retail Commercial	393,445	6.77%
	Undeveloped	3,091,460	53.23%
	sum:	5,808,226	100.00%
	Turpentine Run at Mariendal; Upstream Landuse		
	Landuse	Area (m <sup>2</sup> )	Percentage
	Agriculture	260,948	3.39%
	Hotel/Resort	5,839	0.08%
	Industrial Manufacturing	117,622	1.53%
	Public Facilities	303,905	3.95%
	Residential (High Density)	208,253	2.71%
	Residential (Low Density)	200,928	2.61%
	Residential (Medium Density)	2,261,055	29.38%
	Retail Commercial	395,461	5.14%
	Undeveloped	3,942,616	51.23%
	sum:	7,696,628	100.00%



**Table 4.** Land use distribution upstream of existing USGS water quality monitoring stations in unnamed systems.

Unnamed, and Unconnected Creek Systems	Unnamed Creek at Benner Hill; Upstream Landuse		
	Landuse	Area (m <sup>2</sup> )	Percentage
	Hotel/Resort	798	0.18%
	Residential (Medium Density)	202,266	44.91%
	Undeveloped	247,320	54.91%
	sum:	450,384	100.00%
	Unnamed Creek at Red Hook; Upstream Landuse		
	Landuse	Area (m <sup>2</sup> )	Percentage
	Residential (Low Density)	111,985	8.62%
	Residential (Medium Density)	297,830	22.93%
	Undeveloped	888,958	68.45%
	sum:	1,298,773	100.00%

The land use data was developed by UVI and is circa 1999. Although it is assumed that distributions have changed since the data were developed, the land use dataset gives a general overview of land use regimes in these St. Thomas watersheds.

All five of the USGS monitoring stations are characterized by a variety of upstream land uses. Although a good distribution of land uses helps to account for a variety of pollutant sources, it would be difficult to explicitly characterize them all using ambient water quality sampling alone.

Water quality sampling may provide loading estimates for explicit sources if a single source type is located upstream, such as in undeveloped areas. Likewise, other land uses can be characterized if the upstream area is homogenous. This, in addition to sparse water quality data collected at these locations, would add significant uncertainty to land use-specific loading estimates.

### Monitoring Recommendations

A general lack of watershed water quality data exists in the USVI, as discussed previously. In addition, no non-tidal waters are listed as impaired in the USVI. Therefore, background information regarding sources of pollutants is generally lacking, which makes targeting “worst-case” situations difficult.

The primary purposes for collecting data and information in the USVI are to gain an understanding of the conditions in the region with respect to land use loading and to apply this information in future TMDL development. The collection of information should include water sample collection for pollutant analysis. Monitoring locations should be selected to reflect impacts from local sources and watershed characteristics, as the TMDL work that will ultimately follow this monitoring effort will need to account for these sources and watershed conditions.

Due to the focus on land use sources of pollutants, it is imperative that accurate land use data is incorporated into the analysis. The UVI-ECC land use dataset is circa 1999, and it is assumed that land use distributions have changed since that time.

### **Update the Non-Point Source Management Plan**

The Nonpoint Source (NPS) Management Program aims to protect waters of the territory by mitigating both land and marine nonpoint pollution sources. As such, the involvement of the NPS Pollution Steering Committee, a diverse group of individuals from the public and private sectors is pivotal to ensure that the Territorial NPS Management Program achieves the nine key elements of an effective NPS program as described in the *“Nonpoint Source Program and Grants Guidelines for States and Territories”*, issued on April 12, 2013 and applies to all Section 319-funded grant activities beginning in Fiscal Year 2014.

During fiscal year 2014, the NPS staff reviewed the comments provided by the EPA pertaining to the 2000, *Draft Nonpoint Source Management Plan*. The staff was assigned various sections of the management plan. The NPS Management plan was revised and the first draft was submitted to EPA for review on December 19, 2014.

### **Execute and Monitor Memorandum of Agreement (MOA)**

During fiscal year 2015, the NPS Program sponsored two environmental projects with CWA 319(h) funds. Requests for proposal were sent out via Public Service Announcement (PSA) on February 10, 2015. The following proposals were submitted to the U.S.V.I. NPS Pollution Steering Committee:

- The **Coral Bay Community Council** (requested \$ 75,055 for their project entitled, *“Continued Storm-water BMP Implementation in Coral Bay, St. John, USVI”*,
- The **Smith Bay Association** (requested \$104,000 for their project entitled, *“Smith Bay Water Bay Non-Point Source Pollution Education and Outreach Project”*,
- The **University of the Virgin Islands** (requested \$ 49,815.64 for their project entitled, *“Getting the public involved in Non-Point Source Pollution monitoring in the USVI”*.

On July 10, 2015, the NPS review team, a subgroup of the U.S.V.I. NPS Steering Committee agreed to fund the Coral Bay Community Council and the Virgin Islands Conservation Society environmental projects.

In addition to the environmental projects, the NPS staff was assigned to commence the RFP for Phase II of the 2002 U.S.V.I. Environmental Handbook. Phase II of the handbook consists of revisions to include U.S.V.I. specific design and performance standards, specifications, and trainings for storm-water best management practices to effectively address land-based sources of pollution impacting shorelines and coral reefs. On December 9, 2014, the NPS staff met with representatives of the Virgin Islands Department of Property and Procurement (P&P) in order to gain understanding of their bidding process procedures. Upon receiving clarification, the NPS staff drafted a scope of work and a cover letter for the handbook and submitted these documents to the DPNR Acting Commissioner.

### **Utilize Grant Reporting and Tracking System**

During fiscal years 2014-2015, the NPS staff entered 30% of the old completed projects from previous years into the tracking system. The following projects were entered into the GRTS system:

- **Project grant number:** 99256106
  - NPS Pollution Conservation School Program for Bertha C Boschulte Jr. High School

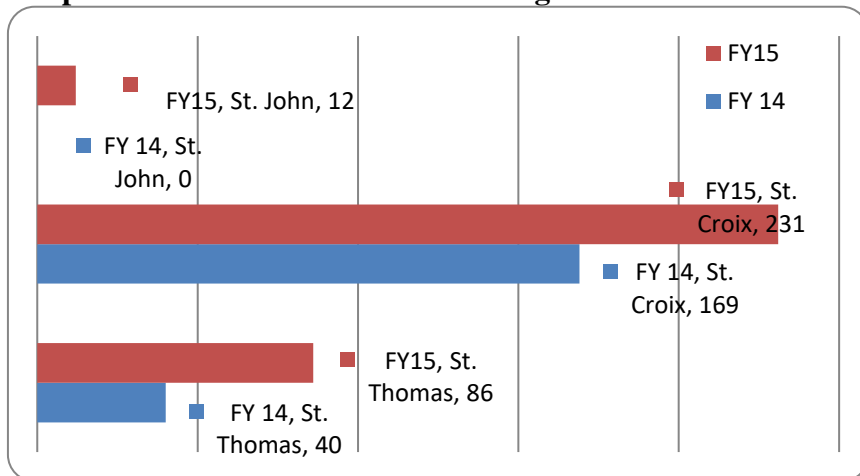
- Claude O. Markoe Elementary School
- Evelyn Marcelli Elementary School
- Jane E. Tuitt Elementary School
- St. Croix Vocational Complex School
- School Rain Garden Demonstration Project
- **Project grant number: 99256108**
  - East End Marine Park Sign
  - Estate Adventure Gut Restoration Project
  - VINE Operations Newsletter
  - Rain Garden Demonstration
  - 10<sup>th</sup> Non-Point Source Conference Pollution Conference
  - Capacity Building Training Workshops
  - St. Croix Youth Involvement in Coastal Cleanups
  - Leave Paradise in its place Campaign
  - The Natural Resources Construction Workshop Phase 2
- **Project grant number: 99256107**
  - Project at the VI Waste Management Authority Green House Facility
  - NPS Conservation School Grant for Ivanna Eudora Kean High School
  - NPS Conservation School Grant for St. Croix Educational Complex High School

## **EARTH CHANGE PERMITTING**

An earth change permit is required before any real property can be cleared, graded, filled or otherwise disturbed. The earth change permitting program continues to educate the public by emphasizing the importance of the implementation of non-point source pollution controls, including sediment control, erosion mitigation measures, and correct construction BMPs.

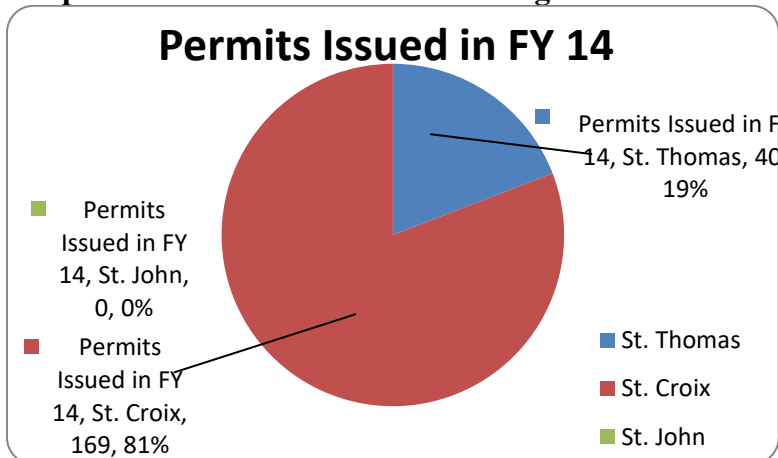
In fiscal year 2014, 183 site inspections and 10 enforcement actions were completed on the island of St. Croix. For fiscal year 2015, 180 site inspections and 4 enforcement actions were completed within the territory. Overall, the total number of permits issued within the territory in fiscal years 2014-2015 is 538. Due to an unanticipated resignation of trained Earth Change staff in the St. Thomas/St. John District, and the difficulty in finding qualified candidates, data on Earth Change Permitting activities were impacted. Procedures have since been put in place to continue recording activity in the St. Thomas office until an Environmental Specialist II has been hired. Graph 1.1 compares the number of earth change permits issued within the three districts.

**Graph 1.1 The Number of Earth Change Permits Issued in FY 2014-2015**



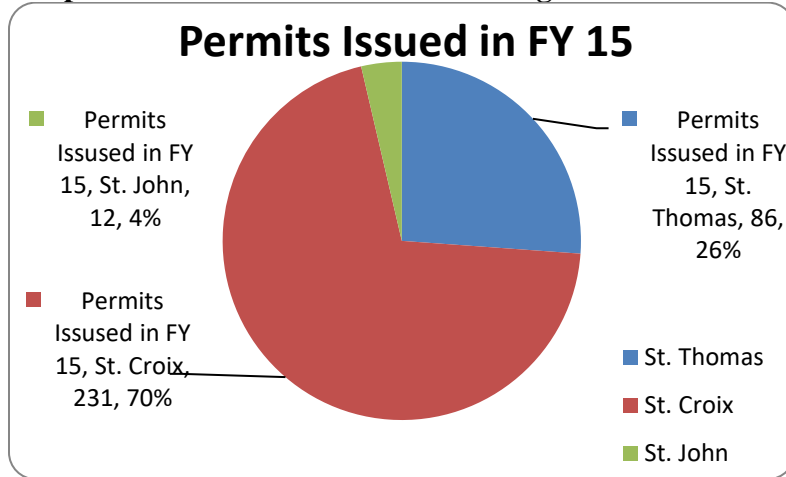
During fiscal year 2014, a total of 526 earth change permits were issued in the Territory. 169 permits were issued on St. Croix, 40 permits were issued on St. Thomas and none on St. John. Graph 1.2 depicts the total number of earth change permits issued in fiscal year 2014

**Graph 1.2 The Number of Earth Change Permits Issued in FY 2014**



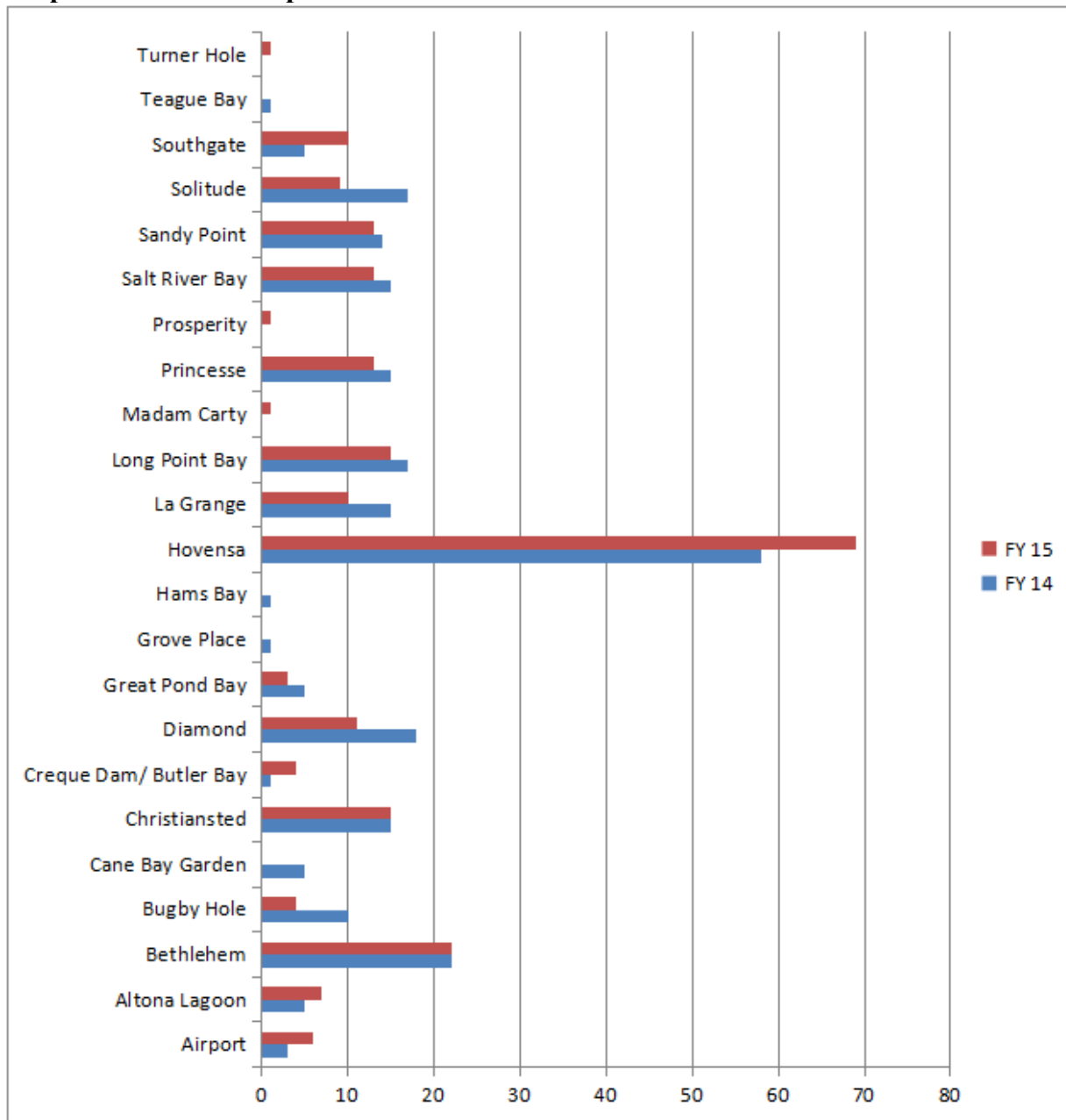
During fiscal year 2015, a total of 329 earth change permits were issued in the Territory. 231 permits were issued on St. Croix; 86 permits were issued on St. Thomas, and 12 permits on St. John. Graph 1.3 depicts the total number of earth change permits issued in fiscal year 2015.

**Graph 1.3 The Number of Earth Change Permits Issued in FY 2015**



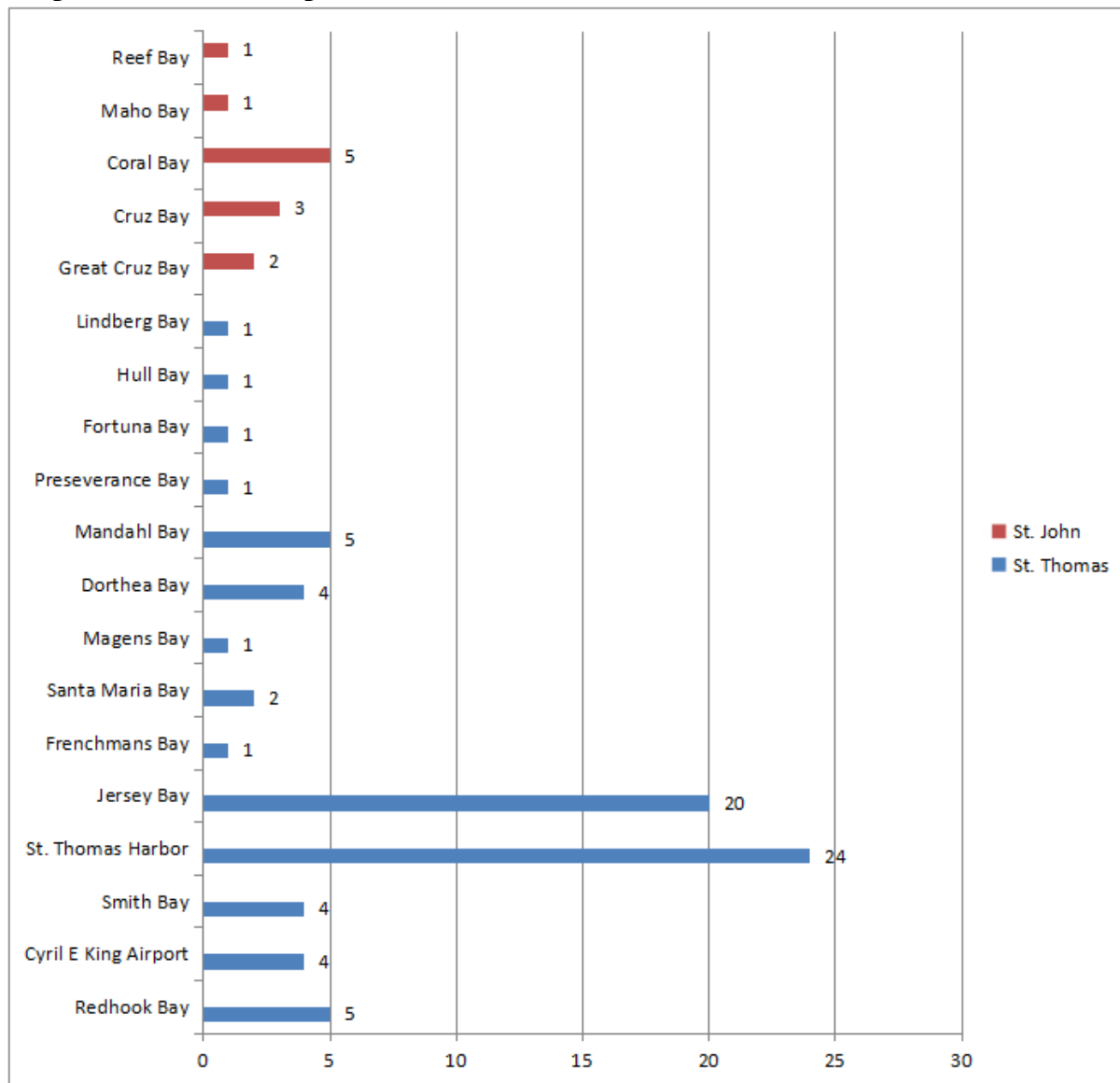
In addition to calculating the number of earth change permits issued, the NPS program also looks for the watersheds that are associated with the earth change permit. Graph 1.4 displays how many permits were issued in each watershed on the island of St. Croix for fiscal years 2014-2015. The top three watersheds which had the most construction activity were Hovenssa, Bethlehem and Long Point Bay watersheds.

**Graph 1.4 The number permits issued in a watershed on St. Croix**



For the district of St. Thomas and St. John, due to an unanticipated resignation of trained Earth Change staff and the difficulty in finding qualified candidates, data on Earth Change Permitting activities were impacted. The data provided in graph 1.5 is only for fiscal year 2015. The top three watersheds which had the most construction activity were St. Thomas Harbor, Jersey Bay and Coral Bay.

**Graph 1.5 The number permits issued in a watershed on St. Thomas and St. John**



### **Educational Outreach**

The NPS program is dedicated to improving community awareness by educating the public at various community events and participating in educational outreach in the private and schools. For fiscal years 2014-2015, the NPS programs participated in five outreach projects. Below summarizes all outreach activity during FY 2014-2015.

- **May 28, 2014, Division of Building Permits, Building Safety Month at Sunny Iles Mall in St. Croix, U.S.V.I.**
  - About 700 residents attended the event
  - Aimed to encourage all residents to raise awareness of the importance of building safety and resilient construction, fire prevention, disaster mitigation, backyard safety, energy efficiency and new technologies in the construction industry.
  - Residents, potential homeowners and developers had the opportunity to meet and question building officials regarding the application requirements for submitting projects, International Energy Conservation Code (IECC) standards, how to build green in the Virgin Islands and how to use best management practices on a site for erosion and sediment control.







- **April 16, 2015, Week of the Young Child, at Claude O. Markoe Elementary School in St. Croix, U.S.V.I.**
  - The Week of the Young Child is a national campaign that highlights the needs of young children and recognizes the importance of early childhood education programs.
  - Roughly 90 children, from kindergarten to second grade attended. A presentation was given to students about a career as an Environmental Specialist and the causes of NPS Pollution.
  - Students were asked questions about what they had learned and those answering correctly received giveaway prizes such as pens, cups, pencils and pamphlets that promote the NPS program.



- **April 22-23, 2015, Earth Day Environmental Fair (Botanical Gardens), in St. Croix, U.S. V.I.**
  - Environmental Education for public and private schools. This event is hosted by the St. Croix Environmental Association (SEA)

- There were displays, exhibits and presentations focused on natural and cultural resources, renewable energy, recycling and reef preservation
- About 1,000 students from 3<sup>rd</sup> to 6<sup>th</sup> grade attended the two-day event. Presentations were given with EnviroScape and poster boards depicting the top six causes of NPS Pollution. At the end of the EnviroScape presentation, students were asked questions about what they had learned and those answering correctly received giveaway prizes such as pens, cups, pencils and pamphlets that promote the NPS program.



**June 21, 2014 & June 6, 2015, Virgin Islands Housing Finance Authority Housing Expo at the Sunshine Mall & Antilles School in St. Croix and St. Thomas, U. S. V. I. –**

- More than 3,000 potential homeowners attended
- The expo provides the necessary information for individuals to begin the process of achieving homeownership.
- The Division of Building Permits provided Environmental Education for new and existing land owners on the permitting process and the use of BMP's on a construction site
- The department displayed model house which is used as an outreach tool to display the correct installation of BMP's such as silt fencing, brush berm, gabion baskets and erosion control straw matting and all the correct aspects of constructing a building.
- Staff had dialogue with potential homeowners on earth change requirements, and also the usage and purpose of best management practices.
- Staff handed out outreach materials on best management practices and watersheds.





### **Travel and Training**

The NPS staff participated in on-island and off-island trainings throughout fiscal years 2014-2015. These trainings continue to provide the tools needed to address the public concerns within our community on NPS. For fiscal years 2014-2015, the NPS programs participated in 9 training sessions. Below summarizes all training activities completed during FY 2014-2015

- March 18, 2014: Green Building Seminar, the University of the Virgin Islands RT Park, St. Croix, U.S. V.I.
- July 16, 2014: Webcast “Waters of the U.S. Clarifying Misconceptions” by Nancy Stoner
- December 9-12, 2013: U.S. Grants Reporting Tracking System Training (GRTS), Chicago, Illinois
- December 2, 2014: EPA Green Infrastructure Webinar by Lori Carry-Kothera, Patrick Bannister, Kari Mackenbach and Toni Demasi
- February 20, 2015: EPA Webinar Investing in Manufacturing Committee Partnership Round 2 by Sarah Lee, Julie Wenah, Ryan Hedgepeth, Tom Murray and Charlie Barsh
- March 2-3, 2015: Grants Writing Training, the University of the Virgin Islands St. Croix, U.S. V.I.
- July 23, 2015: Water and Wastewater Planning Workshop for the Coral Bay Watershed hosted by the CBCC & DPNR.
- August 2-6, 2015: North American Surface Water Quality Conference & Exposition Austin, Texas - Staff received Continuing Education Units (CEU)
- September 17-18, 2015: Florida Storm-water Inspector Training, V.I. – Staff received certification as a Stormwater Management Inspector

### **REPORTING**

In addition to entering projects into the GRTS System, the NPS program also had to submit the following:

- Monthly reports to DPNR management
- Midyear reports to EPA (March 2014 & 2015)
- First draft of the NPS Management Plan (December 2014)
- NPS work plans for fiscal years 2016-2017 (September 2015)
- End of Year reports to EPA (September 2014 & 2015)

## **E. Solid Waste Program**

Under 19 V.I.C. § 1553(g)(1), DPNR is authorized to enforce provisions related to environmental effects of waste disposal, resource recovery and hazardous wastes. Pursuant to 19 V.I.C. § 1560, the Commissioner of DPNR exercised his authority to promulgate rules and regulations for a Used Oil Collection Program under Title 19, Part VI, Chapter 56 of the Virgin Islands Rules and Regulations.

Within three years after its inception, the Used Oil Program issued more than 173 permits to facilities territory-wide. These permits were only valid for three years, and subsequently expired. Facilities are, therefore, required to submit updated information regarding their used oil management, and renew the permits to generate, store or transport used oil every three years.

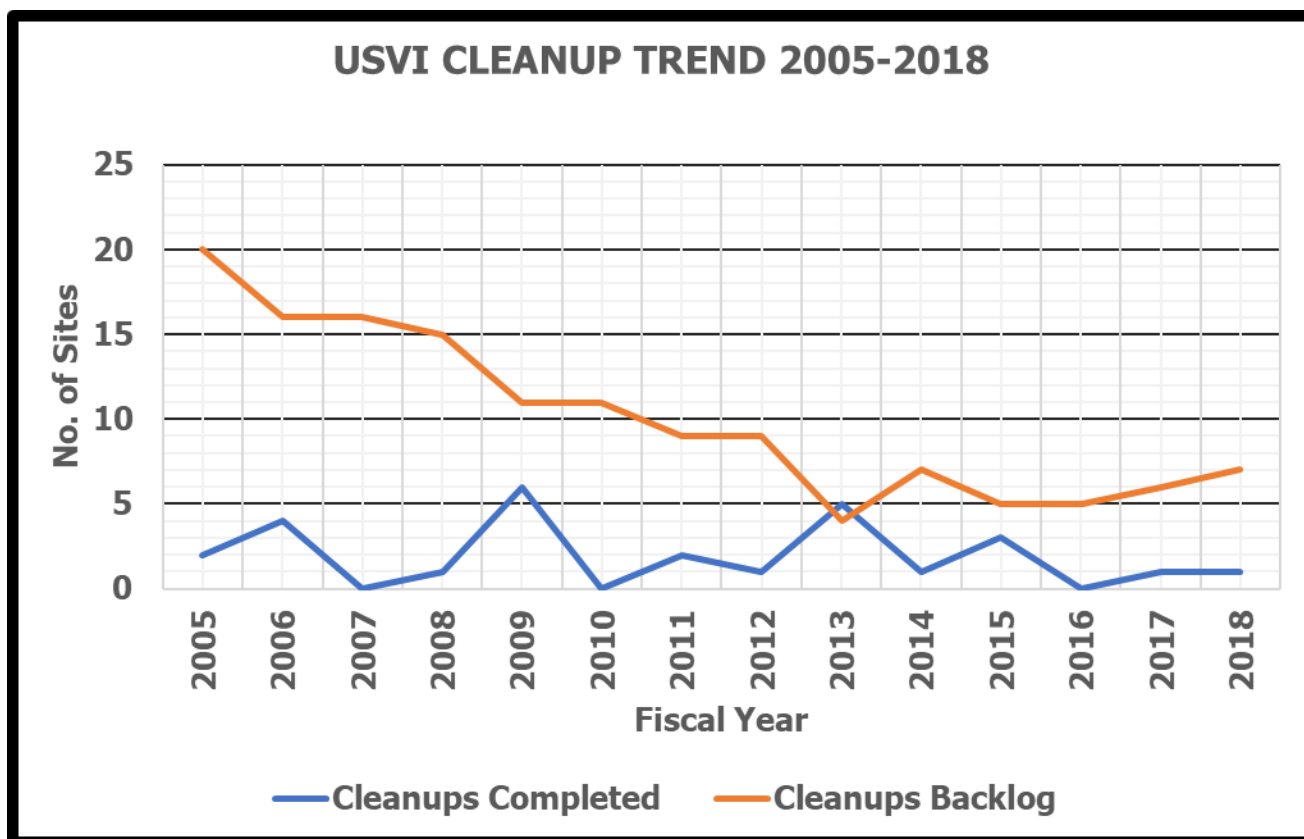
The tables below provide a listing of used oil permits by District. All of the permits are listed to reflect the universe of facilities that have been issued permits to date, even if some permits are currently expired. Several businesses have become defunct since the previous reporting period or are no longer generating used oil, and those facilities are no longer included in the database.

One of the objectives of the Solid Waste Program's enforcement strategy is to pursue enforcement against facilities that have failed to renew their permits. Pursuant to 19 V.I.C. § 1561(c), these facilities will be issued a Notice of Noncompliance initially, and enforcement will be escalated if compliance is not achieved within the corrective action period.

## **F. Oil and Hazardous Materials**

### *1. Underground Storage Tank Program*

As of September 2018, two hundred and eighty-nine (289) underground storage tanks (UST) have been closed in the VI. These closed USTs were assessed, and thirty-seven (37) sites were confirmed to be impacted by oil spills. To date, cleanup was completed at thirty (30) sites. The current backlog is seven (7) leaking underground storage tanks (LUST) sites. Figure II.F.1.a shows the 14-year cleanup trend from FY 2005 through FY 2018 for the USVI.



**Figure II.F.1.a. LUST BACKLOG FY 2018**

Annually, these numbers will go up or down depending on the discovery of new LUST sites and/or completion of cleanups. For example, in 2018, although cleanup was completed at one site, the backlog did not go down by one (1) from 2017, but instead went up by one (1) as shown in Table II.F.1.a below. Refer to [www.epa.gov/ust/ust-performance-measures](http://www.epa.gov/ust/ust-performance-measures) for detailed information.

<b>Table II.F.1.a LUST Clean Up Sites</b>														
Fiscal Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Cleanups Completed	2	4	0	1	6	0	2	1	5	1	3	0	1	1
Cleanups Backlog	20	16	16	15	11	11	9	9	4	7	5	5	6	7

There are seven (7) active LUST sites. Some of the sites will be on the backlog for many more years as they are in varying stages of groundwater remediation. For example, the groundwater remediation at Green Cay Marina and Esso Farmingdale, will be ongoing for many more years.

There are other LUST sites that are not active during FY 2018 because:



- Responsible parties have not initiated site investigation and/or remediation because the owners are unable or unwilling, for example Herbert Grigg Home for the Aged.
- Responsible parties are still negotiating the permitting required (for example Gottlieb is required to secure a Coastal Zone Management Development Permit)
- Responsible parties are trying to secure funding for the cleanup costs (for example, VIPA Seaplane, C'sted). For these sites, the LUST Trust & Impress Fund can potentially be utilized. DPNR Cost Recovery Policy for Leaking UST Trust & Impress Fund, dated 10/22/15, contained the cost tracking mechanism for using LUST Trust Funds for site investigation.

In summary, the Underground Storage Tank (UST) Performance Measures for End-of-Year FY 2018 (data through September 30, 2018) are as follows:

**i. Corrective Action Measures**

- No of Active Tanks: 134
- No of Closed Tanks: 289
- No. of Confirmed Releases: action this year: 1; cumulative 37
- No. of Cleanups initiated: 37
- No. of Cleanups Completed: action this year: 1; cumulative 30
- No. of Cleanups Remaining: 7

**ii. Compliance Measures**

- 100 % in Significant Operational Compliance with Release Prevention Regulations
- 75 % in Significant Operational Compliance with Release Detection Regulations
- 75 % of UST Facilities in SOC w/UST Release Detection and Release Prevention

**iii. Inspection/Delivery Prohibition**

- No. of On Site Inspections Conducted: 29
- No. of Delivery Prohibition Actions: 2

As of September 30, 2018, there are 54 active UST systems in the territory, with a total UST capacity of 1,208,000 gallons (Table II.F.1.b). The status of cleanups at LUST sites is provided in Table II.F.1.c.

**Table II.F.1.b: List of Active UST Systems**

FACILITY NAME	EPA ID No.	Latitude (N)	Longitude (W)	No. Tanks (Active)	Year of Installation & Tank Capacity in Gallons	Capacity in gallons (Active)
Freedom City / Concordia / A&H	0101001	17.7006700	-64.8649700	3	<u>1992:</u> 2-8,000 1-6,000	22,000
Amigo	0101002	17.6983000	-64.8705400	3	<u>1995:</u> 3-8,000	24,000
AT&T Northside	0101003	17.7578600	-64.8876140	2	<u>1997:</u> 2-6,000	12,000
In & Out / Remy / Capital / Farms	0102004	17.7472200	-64.7725100	2	<u>1999:</u> 2-8,000	16,000
Paradise Petrol / Top Gas / Choice / A-1 / Est. Mint	0101005	17.7112700	-64.8308900	3	<u>1997:</u> 1-10,000 1-8,000 1-3,000	21,000
Consumers / Get & Go	0101006	17.7143300	-64.8215200	3	<u>1991:</u> 1-12,000 1-10,000 1-6,000	28,000
Karim	0101007	17.7043900	-64.8520300	2	<u>1992:</u> 2-8,000	16,000
Midpoint / Lower Love	0101008	17.7189600	-64.8055800	2	<u>1994:</u> 2-8,000	16,000
Flow & Go / Queen B / Prosperity / Covet	0101009	17.7077600	-64.8431300	2	<u>1998:</u> 2-8,000	16,000
Quickserve	0101010	17.7136410	-64.8206470	3	<u>2005:</u> 3-10,000	30,000
Puma Shuama / Shuama	0102011 / <u>101011</u>	17.7271400	-64.7479900	3	<u>1991:</u> 2-12,000 1-8,000	32,000
Sion Farm	0102012	17.7286100	-64.7431100	3	<u>1998:</u> 2-10,000 1-6,000	26,000



One Love West / VP West	0101013	17.6970600	-64.8765200	2	<u>1986:</u> 2-10,000	20,000
Gasaway / Superior / Queen Mary	0101014	17.7155990	-64.8138230	3	<u>1995:</u> 2-8,000 1-4,000	20,000
Ziggy / Smokey's	0102016	17.7561600	-64.6320400	2	<u>1991:</u> 2-8,000	16,000
One Love Service Center / One Love East (Princess)	0102017	17.7598200	-64.7399600	3	<u>1996:</u> 2-8,000 1-4,000	20,000
One Love Orange Grove / Lionel's	0102018	17.7454200	-64.7195000	3	<u>1996:</u> 2-12,000 1-10,000	34,000
Gasville / A&H / La Reine	0102019	17.7288400	-64.7734800	3	<u>1992:</u> 2-10,000 1-8,000	28,000
Gas for Less	0102020	17.7283400	-64.7494900	2	<u>1998:</u> 2-8,000	16,000
Five Corner	0102021	17.7522200	-64.7255800	2	<u>1998:</u> 2-10,000	20,000
Gas City 2 / Everybody	0102022	17.7590900	-64.7389400	3	<u>1998:</u> 2-8,000 <u>2015:</u> 1-4,000	20,000
DELMA/Gas City / VP Princess	0102023	17.7567600	-64.7349200	2	<u>1991:</u> 2-8,000	16,000
Eastend / Eastway / VP Boetzberg	0102024	17.7460800	-64.6851900	2	<u>1990:</u> 2-8,000	16,000
Super Tanks / VP Diamond	0102025	17.7277200	-64.7486600	3	<u>1999 retro</u> <u>2009:</u> 1-10,000 1-8,000 1-5,000	23,000
Sam's Gas / VP Glynn	0102026	17.7486000	-64.7721400	2	<u>2014:</u> 2-12,000	24,000
Cruzan Petroleum / VP Peters Rest	0102027	17.7298600	-64.7395800	3	<u>1992:</u> 3-8,000	24,000
Welco	0102028	17.7447200	-64.6938500	2	<u>1995:</u> 2-8000	16,000
Gateway	0102029	17.7252900	-64.7334500	2	<u>2001:</u> 2-10,000	20,000

Limetree Bay / Hovenssa	0102030 / <u>102068</u>	17.7159060	-64.7609840	2	<u>1992:</u> 2-10,000	20,000
Abramson	0101033 / <u>101059</u>	17.6966340	-64.8748230	2	<u>1993:</u> 1-4,000 1-2,000	6,000
Target	0101034	17.6971410	-64.8749690	4	<u>2016:</u> 4-10,000	40,000
AT&T Peterborg	0201001	18.3740930	-64.9274560	2	<u>1998:</u> 2-6,000	12,000
PG Barbel Plaza / DOMINO Barbel Plaza	0201002	18.3412700	-64.9210700	2	<u>2017:</u> 2-14,000	28,000
First Stop / Value Foods / DOMINO Est. Thomas	0201003	18.3363700	-64.9170100	2	<u>2013:</u> 2-12,000	24,000
First Stop East / DOMINO Est Frydenhoj	0201004	18.3221800	-64.8667100	3	<u>2012:</u> 3-8,000	24,000
PG Smith Bay / DOMINO Est Smith Bay	0201005	18.3452580	-64.8735690	2	<u>2017:</u> 2-10,000	20,000
TOTAL Bonjour, Esso Tutu, 4 Winds, Esso Energy Mart, On the Run	0201006/ <u>201007</u>	18.3386400	-64.8878800	3	<u>2002:</u> 1-10,000 1-8,000 1-4,000	22,000
TOTAL One Stop Red Hook / Eddie's Mart / Esso One Stop	0201009 / <u>202030</u>	18.3264900	-64.8507300	2	<u>2004:</u> 2-10,000	20,000
TOTAL Times Center Rodriguez / Esso Rodriguez	0201010	18.3353500	-64.8905000	2	<u>2000:</u> 2-10,000	20,000
Jarrah Mini Mart / One Stop SS/ Esso One Stop Sugar Estate	0201011 / <u>201012</u>	18.3403800	-64.9176600	2	<u>1998:</u> 2-10,000	20,000
Mt. Olive Hometown / Texaco Hometown	0201013	18.3481500	-64.8940100	2	<u>1999:</u> 2-10,000	20,000
PUMA Pollyberg / Texaco Pollyberg	0201014	18.3427700	-64.9252300	1	<u>2012:</u> 1-12,000	12,000

PUMA Smith Bay / Texaco Smith Bay	0201016	18.3456500	-64.8761800	3	1987: 2-8,000 1-6,000	22,000
PUMA Tutu / Texaco Tutu	0201017	18.3403900	-64.8872300	3	2006: 1-12,000 1-10,000 1-8,000	30,000
PUMA Veterans Drive / Texaco Veterans Drive	0201018	18.3390040	-64.9416540	3	2012: 2-12,000 1-6,000	30,000
PUMA Yacht Haven Grande	0201019 / 201043	18.3354430	-64.9189080	6	2007: 5-12,000; 1-10,000	70,000
TOTAL Gottlieb Quickway	0202024	18.3383000	-64.9479600	3	1998: 3- 10,000	30,000
PUMA Airport / Texaco Airport	0202025	18.3379900	-64.9591600	2	1987: 1-10,000 1993: 1-10,000	20,000
PUMA Bovoni / Texaco Bovoni	0202026	18.3175900	-64.8866500	2	1989: 2-8,000	16,000
PUMA Northside / Texaco Northside	0202027	18.3565760	-64.9597790	2	1999: 1-6,000 1-4,000	10,000
Racetrack	0201029	18.3430220	-64.9256590	2	2008: 2-10,000	20,000
American Yacht Harbor / PUMA AYH	201046 / 0201015	18.3252280	-64.8522733	4	2004: 4-10,000	40,000
AT&T Kronprindsens Gade	0201048	18.3409490	-64.9393060	1	1996: 1-8,000	8,000
E&C	0302002	18.3265810	-64.7908300	3	2006: 2-12,000 1-8,000	32,000
Statistics				135		1,208,000

**Table II.F.1.b: Status of LUST sites**

SITE	STATUS (12/17/18) FY 2018 Updates in bold.	
1. Green Cay Marina	In progress	<p><b>11/01/18: Eighth Quarter Sampling Event report was submitted. PENDING REVIEW BY DPNR.</b></p> <p><b>8/1/17: Seventh Quarterly Report was submitted.</b>  <b>COMMENT: Does the 7th Quarter results indicate the need for follow-up treatment is required i.e. another application?</b></p> <p>07/31/17: The 6th Quarter Sampling Event Report (for the October 15, 2016 sampling event) was received by DPNR on November 1, 2016. The following conclusions and recommendation are observed:</p> <ul style="list-style-type: none"> <li>• Benzene in MW-7 has decreased to below the MCL.</li> <li>• Benzene in MW-9 remains above the MCL.</li> <li>• Continuation of quarterly sampling events to monitor the progress of the enhanced bioremediation.</li> </ul>
2. Esso Farmingdale	In progress	<p><b>10/23/18: DPNR received of the hardcopy Groundwater Sampling Report - May 2017, dated 1/16/18.</b></p> <ul style="list-style-type: none"> <li>• access to site is preventing GES from completing the required monitoring of the site in a timely manner.</li> </ul> <p><b>PENDING REVIEW BY DPNR.</b></p> <p>05/25/17: DPNR comment letter to Carlos Moldonado of GES Re: Groundwater Sampling Report November 2016.</p>
3. Puma Budget	NFA Pending in FY 2019	<p><b>11/14/18: UST Closure report indicated post-excavation soil sampling results below DPNR cleanup standards.</b></p> <p>7/4/17: UST Closure workplan submitted by Bioimpact.</p> <p>10/20/16 Order for Corrective Action: UST Closure Limited Phase 1 and 2 Site Assessment Report</p> <p>8/24/16 Puma performed site assessment</p>
4. Puma Veteran's Drive	NFA Pending in FY 2019	<p><b>11/15/18: Groundwater Monitoring Report and No Further Action Request for the Puma Veterans Drive Service Station. Plume Stability Analysis and a RBCA analysis prepared for the site. PENDING REVIEW BY DPNR</b></p> <ul style="list-style-type: none"> <li>• Based on the July 2018 groundwater analytical results, the updated plume stability analysis demonstrates that the groundwater plume at the site is stable.</li> <li>• No Further Action is requested for the site if potable use of groundwater at the site is prohibited, and the site use is restricted to commercial/industrial purposes.</li> </ul> <p>7/31/17: DPNR received the Dec 2016 Groundwater Monitoring Report for the Puma Veterans Drive Service Station in St. Thomas, USVI.</p>

SITE	STATUS (12/17/18) FY 2018 Updates in bold.	
		<p>Groundwater monitoring activities demonstrate that the groundwater concentrations continue to attenuate following the source removal excavation activities completed in October 2012 and August/October 2014. In addition, groundwater concentrations appear to be stable and/or shrinking.</p> <p>The third event of quarterly groundwater monitoring was completed in May 2017 to evaluate stability of the groundwater concentrations at the site. The May 2017 results will be presented in a groundwater monitoring report to be submitted to the DPNR. In addition, a Plume Stability Analysis and a RBCA analysis will be prepared for the site. No Further Action shall be requested for the site if the Plume Stability Analysis demonstrates that the plume is stable and the RBCA Analysis demonstrates that the residual petroleum hydrocarbon impact is not a risk to human health and the environment.</p>
5. Domino Barbel Plaza	<b>In progress</b>	<p><b>5/24/18 Barbel Plaza- Conditional approval gw RAWP</b> <b>COMMENT: NEED IMPLEMENTATION DATE??</b></p> <p>05/07/17: DPNR Review of Site Assessment Report for UST Closure. Domino ordered to implement groundwater investigation.</p>
6. VIPA Airport STT	<b>NFA Pending in FY 2019</b>	<p><b>8/9/18: In-place Closure Completed. NFA pending deed restriction for "closure in place".</b></p> <p>07/10/17: DPNR approved the UST Closure Workplan and issued "Permit to Close UST System".</p>
7. Domino Contant	<b>NFA Pending In FY 2019</b>	<p><b>8/29/18 Closure completed - UST Closure Report pending Nestor notarized letter for disposal of tanks from Contant.</b></p> <p>6/10/18: DPNR comment letter on the Site Assessment Report dated July 10, 2018.</p> <p>5/18/17: DPNR Conditional approval of UST Closure Plan</p>

In efforts to protect the health and safety of this valuable resource, the people, and the environment, the UST Program at DPNR-DEP has accomplished the following:

- Permitting Program to insure the registration of all USTs.
- Ensuring that all UST systems provide proof of Financial Responsibility. In the event of a leak, damages and cleanup would be covered.
- The status review of twenty LUST (Leaking Underground Storage Tank) sites.
- The setup of the UST "Trust and Impress Account" a fund for environmental cleanup. This potentially may impose a gasoline tax of 1 cent/gallon.
- The development of soil/groundwater cleanup standards and determine the applicability of Risk-Based Corrective Action levels for UST closures and site assessments. How clean is clean?
- Developing a local Certification program for persons working with UST systems.

Pursuant to the Virgin Islands Underground Storage Tank Act (USTA) enacted in May 2000, all new and existing USTs must obtain a permit to use or own/operate at UST system. There are three kinds of permits: To use or own/operate, To Construct/Upgrade, and To Close. All regulated underground storage tanks must be permitted in order to operate. It is unlawful to operate a UST system without a permit.

Permit to Use or Own/Operate: An operating permit allows a tank owner to operate an UST system and assures the facility is in compliance with all sections of 40 CFR 280 and 12 V.I.C. Chapter 16. Noncompliance with these laws and regulations is in violation of the permit. The application fee is \$500 and the operating permit is good for two (2) years from the date of issue. A completed application MUST include the following: a completed EPA Notification (EPA Form 7530-1), proof of a filed notice of an UST at the recorder of deeds (see appendix A for a template), proof of financial responsibility method, and copy of last twelve (12) months of leak detection results

Permit to Construct/Upgrade: A permit to construct or upgrade is necessary for any type of new UST construction or an upgrade to a current UST system. The application fee is \$500 and the permit to construct/upgrade is good for one (1) year. Plans and specifications must bear the seal or number of a professional engineer registered in the United States Virgin Islands. Any installation, design, retrofit, repair, maintenance, or conduct of tank testing or analysis must be conducted by certified individual.

Permit to Close: A permit to close is necessary for the closure of a regulated UST system.

Cleanup costs for petroleum releases can be very expensive, even small releases over a period of time can contribute to large cost cleanups. Therefore, UST owners/operators are required to have the means to pay for the costs of corrective action and compensating third-parties for bodily injury and property damage due to a leaking UST. It is important that financial responsibility is met in the event of a leak so corrective action can begin promptly, potentially keeping cleanup costs relatively low. The financial responsibility regulations allow UST owners and operators to choose from a variety of financial mechanisms to comply with the regulations. One of these financial mechanisms is the use of insurance; owner and operators can call the National Association of Insurance Commissioners at (816) 842-3600 or [http://www.naic.org/state\\_web\\_map.htm](http://www.naic.org/state_web_map.htm) for information.

## *2. Terminal Facility License Program*

At present, there are approximately 78 facilities that are regulated by the Terminal Facility License (TFL) Program of DEP. Some of these facilities may not be considered waterfront, as defined by the Oil Spill Prevention and Pollution Control Act, 12 VIC §707 et. seq. The number of TFL is on the increase as more facilities are going off WAPA grid. It has been DPNR's practice and policy to regulate all above ground storage tanks (AST) that stores greater than 1,200 gallons of oil as a TFL; regardless of location.

There are also several Underground Storage Tank (UST) System retail gas stations (non-waterfront) that utilize ASTs for the storage of diesel fuel. They are NOT regulated by TFL program, despite the following:

- a. the AST storage capacity is greater than 1,200 gallons;
- b. the stored material is diesel, which falls within the definition of “oil”;
- c. the need for the Spill Prevention Control and Countermeasures (SPCC) Plan due to inadequate secondary containment, poor maintenance, poor housekeeping, lack of spill kits, etc.;

## PERMITTING

### Permitted facilities

There are 78 facilities that have been assigned with a TFL Permit Number. These facilities and their permitting status are listed in Table II.F.2.a. The breakdown by island is as follows:

St. Thomas: 37 (47%)

St. John: 7 (9%)

St. Croix: 34 (44%)

**TABLE II.F.2.a: List of Terminal Facilities**

Facility Name	Physical Address	Permit Number
<b>Limetree Bay Terminals LLC (FKA Hovensa)</b>	#1 Est Hope St. Croix VI 00820-5625	<b>STX-001</b>
<b>PUMA Terminal STX</b>	Henry E. Rohlsen Airport C’sted, VI 00820	<b>STX-002</b>
<b>Marriot Frenchmans Reef</b>	BAKKERO ESTATE No.5a FRENCHMAN'S BAY QTR. #5 Estate Bakkaroe, St. Thomas, VI 00802	<b>STT-003</b>
<b>IGY-AYH St. Thomas Holdings LLC</b>	18A-1 ESTATE SMITH BAY EAST END QTR. 6100 Red Hook Qtr #2, St. Thomas, VI 00802	<b>STT-004</b>
<b>Cruzan Viril Ltd.</b>	Cruzan Rum Distillery, 3A Estate Diamond, Frederiksted, St. Croix, USVI 00841	<b>STX-005</b>
<b>Yacht Haven Grande</b>	5304 Yacht Haven Grande, Suite 100, St. Thomas, VI 00802	<b>STT-006</b>
<b>PCPR DBA USVI Fuel Services, STT</b>	89 Subbase, St. Thomas, USVI 00802 PCP Puerto Rico DBA USVI Fuel Services Subbase 8240 St. Thomas, USVI 00802	<b>STT-007</b>

Facility Name	Physical Address	Permit Number
<b>Boynes Trucking System</b>	#14 Lindberg Bay, St. Thomas, VI 00802 P O BOX 1206 ST JOHN, VI 00831	<b>STT-008</b>
<b>VI WAPA St. Croix</b>	7-A PENITENTIARY LAND CENTRAL FACTORY P.O. Box 5997 Christiansted, VI 00823	<b>STX-009</b>
<b>VI WAPA St. Thomas</b>	8189 Krum Bay Subbase St. Thomas, VI 00802	<b>STT-010</b>
<b>Vivot Equipment Corporation</b>	9010 Estate Cottage Suite 2 St. Croix, VI 00820	<b>STX-011</b>
<b>Green Cay Marina</b>	REM 2 & 58 SOUTHGATE 5000 Estates Southgate Christiansted, VI 00820	<b>STX-012</b>
<b>St. Croix Renaissance Group</b>	1 Estate Anguilla, St. Croix VI 00851 POB 1525 Kingshill VI 00851	<b>STX-013</b>
<b>Total Petroleum PR Corp.</b>	CEK Airport VI 00802 Plot 70Y LINDBERG BAY No.4A SOUTHSIDE QTR	<b>STT-014</b>
<b>Gas Works, Inc.</b>	4B-D Estate Bovoni St. Thomas, VI 00802	<b>STT-015</b>
<b>Heavy Materials, St. Thomas</b>	7865 Estate Mariendahl # 11 St. Thomas, VI 00802-1600	<b>STT-016</b>
<b>Heavy Materials, St. Croix</b>	Plot # 10-D Estate Cottage VI 00802	<b>STX-017</b>
<b>School Busing, Inc.</b>	#2-2 Estate Bovoni, 7403 Bovoni #2-2 St. Thomas, VI 00802-2549	<b>STT-018</b>
<b>Crown Bay Marina</b>	SUB BASE #168&169 SOUTHSIDE QTR. 8168 Subbase, Suite 528, VI 00802	<b>STT-019</b>
<b>Caneel Bay Resort/Marina</b>	Parcel 12 D Estate Caneel Bay POB 720 Cruz Bay, St. John, VI 00831	<b>STJ-020</b>
<b>Execujet Flight Services</b>	8201 Lindberg Bay St. Thomas, VI 00802	<b>STT-021</b>
<b>KAC 357 Inc., DBA Plaza West</b>	14 Plessen, Frederiksted VI 00840-4621 PAR 1, 14, 14-A, MTR 28 & 29 PLESSEN	<b>STX-022</b>
<b>KAC 357 Inc., DBA Plaza Tutu</b>	Tutu Mall Post Office, Tutu Park Mall, Anna's Retreat, St. Thomas VI 00805 26 REM EST CHARLOTTE AMALIE NEW QTR	<b>STT-023</b>



<b>Facility Name</b>	<b>Physical Address</b>	<b>Permit Number</b>
<b>Saga Haven Marina</b>	67 ESTATE FRYDENHOJ RED HOOK 6117 Estate Frydenhoj	<b>STT-024</b>
<b>Bohlke International /Tradewinds Flight Ctr</b>	Henry E. Rohlsen Airport Christiansted VI 00820	<b>STX-025</b>
<b>Sugar Bay Resort</b>	6500 Estate Smith Bay, St. Thomas VI 00802	<b>STT-026</b>
<b>Ritz Carlton Hotel</b>	3 & 4-9 NAZARETH NO.1 RED HOOK QTR. 6900 Est Great Bay, St. Thomas VI 00802	<b>STT-027</b>
<b>The Westin St. John Resort &amp; Villas</b>	300-A CHOCOLATE HOLE CRUZ BAY QTR P.O. Box 8310 St. John, VI 00831	<b>STJ-028</b>
<b>Seaborne Airlines SSB- STX</b>	1210 Watergut, St. Croix	<b>STX-029</b>
<b>PC Landscaping &amp; Water Delivery</b>	18 D Estate Plessen Frederiksted, VI 00841	<b>STX-030</b>
<b>Marina Operations LLC (FKA St. Croix Marine)</b>	5063 Gallows Bay, St. Croix USVI 00820	<b>STX-031</b>
<b>Seaborne Airlines, SSB- STT</b>	WATERFRONT PARCEL B 3400 Veterans Drive, St. Thomas 00803	<b>STT-032</b>
<b>Marriott's Frenchman's Cove</b>	7338 Estate Bakkerø, St. Thomas, USVI 00802	<b>STT-033</b>
<b>Virgin Islands Regulated Waste Management, Inc.</b>	Plot 1B O'Neale's Compound, Wilfred Allick Container Port, St. Croix	<b>STX-034</b>
<b>Giant Gas Station</b>	6&9 Estate Thomas, St. Thomas, VI 00802	<b>STT-035</b>
<b>Avis Rent A Car System, LLC</b>	Henry E. Rohlsen Airport P.O. Box 1778, Kingshill VI 00851	<b>STX-036</b>
<b>Diageo USVI Inc</b>	1 Estate Annaberg and Shannon Grove, St. Croix VI 00851 RR1 Box 9400 Kingshill VI 00851	<b>STX-037</b>
<b>Chocolate Hole Gas Station</b>	481-1 Estate Chocolate Hole, St. John, VI 00831	<b>STJ-038</b>
<b>Surtep Enterprises Inc., DBA PETRU GAS</b>	47E KRONPRINDSENS GADE CHARLOTTE AMALIE, STT. POB 502626 St. Thomas, VI 00805	<b>STT-039</b>

Facility Name	Physical Address	Permit Number
<b>Elysian Beach Resort</b>	ESTATE NAZARETH 8-1 RED HOOK QTR 6800 Estate Nazareth, St. Thomas, VI 00802	<b>STT-040</b>
<b>Dynasty Gas / All Around Maintenance, Inc</b>	ADRIAN 5C CRUZ BAY QTR.	<b>STJ-041; UNDER CONSTRUCTION</b>
<b>Express Fuel</b>	1801 Est. Thomas VI 00802	<b>STT-042</b>
<b>AT&amp;T Peterborg</b>	#1 Peterborg AT&T Transoceanic Comm., LLC, 301 S Akard, Rm 1700, Dallas, TX 75202	<b>STT-043</b>
<b>Bolongo Bay Beach Resort</b>	7150 Bolongo St. Thomas, VI 00802	<b>STT-044; INACTIVE, upgrade pending; current capacity below 1,200 gal.</b>
<b>Ritz Carlton Timeshare</b>	TRACT #4 CONSOLIDATED NAZARETH No.1 RED HOOK QTR. 6900 Great Bay, St. Thomas USVI 00802	<b>STT-045</b>
<b>Gallows Bay Point Resort</b>	3 AAA Gallows Point Rd, P.O. Box 58, St John, VI 00831	<b>STJ-046</b>
<b>Loveco Petroleum, Inc.</b>	#3A Enighed Bay, St. John, VI 00830	<b>STJ-047</b>
<b>VING</b>	VI National Guard Estate Bethlehem Military Compound, St. Croix, U.S.V.I.	<b>STX-048</b>
<b>Cowpet Bay East</b>	6301 Cowpet Bay East St. Thomas 00802	<b>STT-049</b>
<b>Cowpet Bay West</b>	6301 Cowpet Bay West St. Thomas VI 00802; 6201 Windward Way, St. Thomas, VI 00802	<b>STT-050</b>
<b>Petroleum Brokers, LLC</b>	8530 # 14 Lindberg Bay St. Thomas VI 00802	<b>STT-051</b>
<b>St. Thomas Jet Center</b>	North Ramp Cyril E King Airport St. Thomas, VI 00802	<b>STT-052</b>
<b>TRI Island Energy, LLC</b>	3439 Kronprindsens Gade Suite 7 47C-1 Kronprindsens Gade P.O. Box 305062, St. Thomas, VI 00803	<b>STT-053</b>

Facility Name	Physical Address	Permit Number
<b>U&amp;W Industrial Supply Fueling Station</b>	13R Estate Bethlehem Middle Works St. Croix VI 00850	<b>STX-054</b>
<b>St. Croix Trading Co. Inc.</b>	118 Estate Mt. Welcome St. Croix, VI 00820	<b>STX-055; INACTIVE – upgrade pending; currently no oil storage</b>
<b>Puma Budget</b>	8 Estate Golden Rock C'sted, St. Croix, VI 00820	<b>STX-056</b>
<b>AT&amp;T Northside</b>	401 Northside, F'sted VI 000840 AT&T Transoceanic Comm., LLC, 301 S Akard, Rm 1700, Dallas, TX 75202	<b>STX-057</b>
<b>Bluebeard's Beach Resort</b>	FRENCHMANBAY 100REM.100-1 No.4 FRENCHMANS BAY QUARTER 7511 Frenchman's Bay #100, St. Thomas, VI 00802	<b>STT-058</b>
<b>Nautilus, Inc. (managed by LSJE, LLC )</b>	Little Saint James Island 6100 Red Hook Qtr B3, VI00802-1348	<b>STJ-059</b>
<b>Puma Bovoni Service Station, PCPR DBA USVI Fuel Services, STT</b>	Estate Bovoni Parcels 5A-2, 5A-3 and 5A-29, St. Thomas, VI 00803	<b>STT-060</b>
<b>Divi Carina Bay / GRAPETREE SHORES INC</b>	25 & 16 TURNER HOLE 5025 Estate Turner Hole, C'sted, VI 00820	<b>STX-061</b>
<b>Sion Farm Distillery</b>	4-G Estate Sion Farm PO Box 24188 Christiansted, VI 00824	<b>STX-062</b>
<b>Carambola Northwest LLC</b>	1 Estate Davis Bay, St. Croix PO Box 3031 Kingshill, St Croix, VI 00851	<b>STX-063</b>
<b>VIWAPA Estate Body Slob Fueling Station</b>	PLOT 1-B,REM 1-C & 1-C-1 BODY SLOB ; VIWAPA PO Box 1450 St Thomas, VI 00804	<b>STX-064</b>
<b>AYAH PLAZA LLC</b>	C-12-1 ESTATE HOFFMAN 2B NEW QTR PO Box 305198 St Thomas, VI 00803	<b>STT-065 UNDER CONSTRUCTION.</b>

Facility Name	Physical Address	Permit Number
<b>PG FUEL, Inc</b>	Parcel 70-AB Estate Lindberg Bay	<b>STT-066</b> Status unknown. CZM permitting?
<b>Topa Equities - Bellows International</b>	Submarine Base #43, 6B Southside Qtr Harwood Hwy, St. Thomas, USVI 00804 Subbase 8240 St. Thomas, USVI 00802	<b>STT-067</b>
<b>Standard Aviation LLC</b>	Cyril E. King Airport, 69 Lindbergh Bay, STT, VI 00802	<b>STT-068</b>
<b>VIWMA</b>	Virgin Islands Waste Management Authority 3200 Demarara Charlotte Amalie VI 00802	<b>STT-069</b> Upgrade pending – currently below 1,200 gal.
<b>Innovative Telephone, VIYA Mt.Pleasant Warehouse</b>	2C Estate Mt. Pleasant, VI 00851 P.O. Box 6100, St. Thomas VI 00803	<b>STX-070</b>
<b>Innovative Telephone, VIYA Gassett Warehouse</b>	25C Estate Charlotte Amalie, VI 00802 P.O. Box 6100, St. Thomas VI 00803	<b>STT-071</b>
<b>Tourism Industries LLC DBA Budget Rent-a-Car of St. Croix</b>	Henry E. Rohlsen Airport Rd. P.O. Box 278, C'sted VI 00821	<b>STX-072</b>
<b>High Quality Concrete USVI</b>	Plot 8 Estate Cottage, C'sted, St. Croix VI 00820	<b>STX-073</b>
<b>United Corporation DBA Plaza Extra East</b>	PLOT 4-C & D SION FARM, St. Croix P.O. Box 763, C'sted VI 00821	<b>STX-074</b>
<b>Topa Equities - Leeward Islands Management Company</b>	PLOT 8-A ESTATE DIAMOND, St. Croix P.O.Box 4519 KINGSHILL ST. CROIX VI 00851	<b>STX-075</b>
<b>Marco St. Croix, Inc.</b>	222-223 Estate La Reine, Kingshill Commercial Park, St. Croix VI 00850	<b>STX-076</b>
<b>Bates Trucking</b>	61-61A Castle Coakley, St. Croix P.O. Box 834 Kingshill St. Croix, VI 00851	<b>STX-077</b>

Facility Name	Physical Address	Permit Number
<b>East End Asphalt</b>	Parcel Nos. 3A & 3B Estate Bovoni, St. Thomas VI 00802 18A Estate Havensight, St. Thomas VI 00802	<b>STT-078</b>
<b>Available</b>		<b>ST__-079</b>
<b>PG GAS EAST SIDE, INC.</b>	17F-1, Estate Smith Bay	<b>STT-080</b> <b>Status unknown.</b>

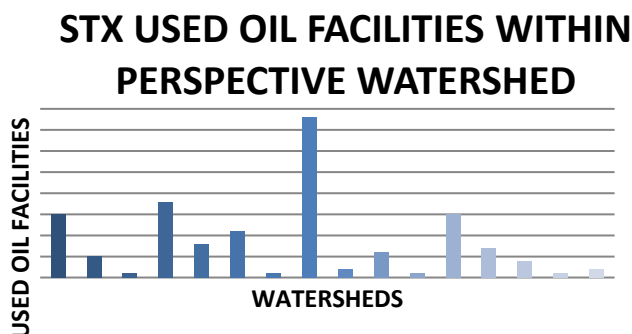
### 3. The Used Oil Program

The Solid Waste Program is charged with regulating commercial facilities that generate; store and transport used oil within the Territory. Used Oil is a solid waste that has been designated as a “Special Waste” because of its properties or the particular nature of the waste that can create solid waste management problems. Such problems may result from the illegal dumping or accidents that contaminated the environment and endanger human health. To help protect the valuable resources of the Virgin Islands, the solid waste program aggressively conducts inspections and issue permits to facilities that generate and store used oil. Such initiative helps to protect the area of land where all of the water that is under it or drains off of it goes into the same place called a watershed.

The figures and tables below provide a listing of used oil permits issued within each district in the Virgin Islands. All of the permits that are listed reflect the universe of facilities that have been issued permits to date.

One of the objectives of the Solid Waste Program’s enforcement strategy is to pursue enforcement against facilities that have failed to renew their permits. Pursuant to 19 V.I.C. § 1561(c) (2013), these facilities will be issued a Notice of Noncompliance initially, and enforcement will be escalated if compliance is not achieved within the corrective action period.

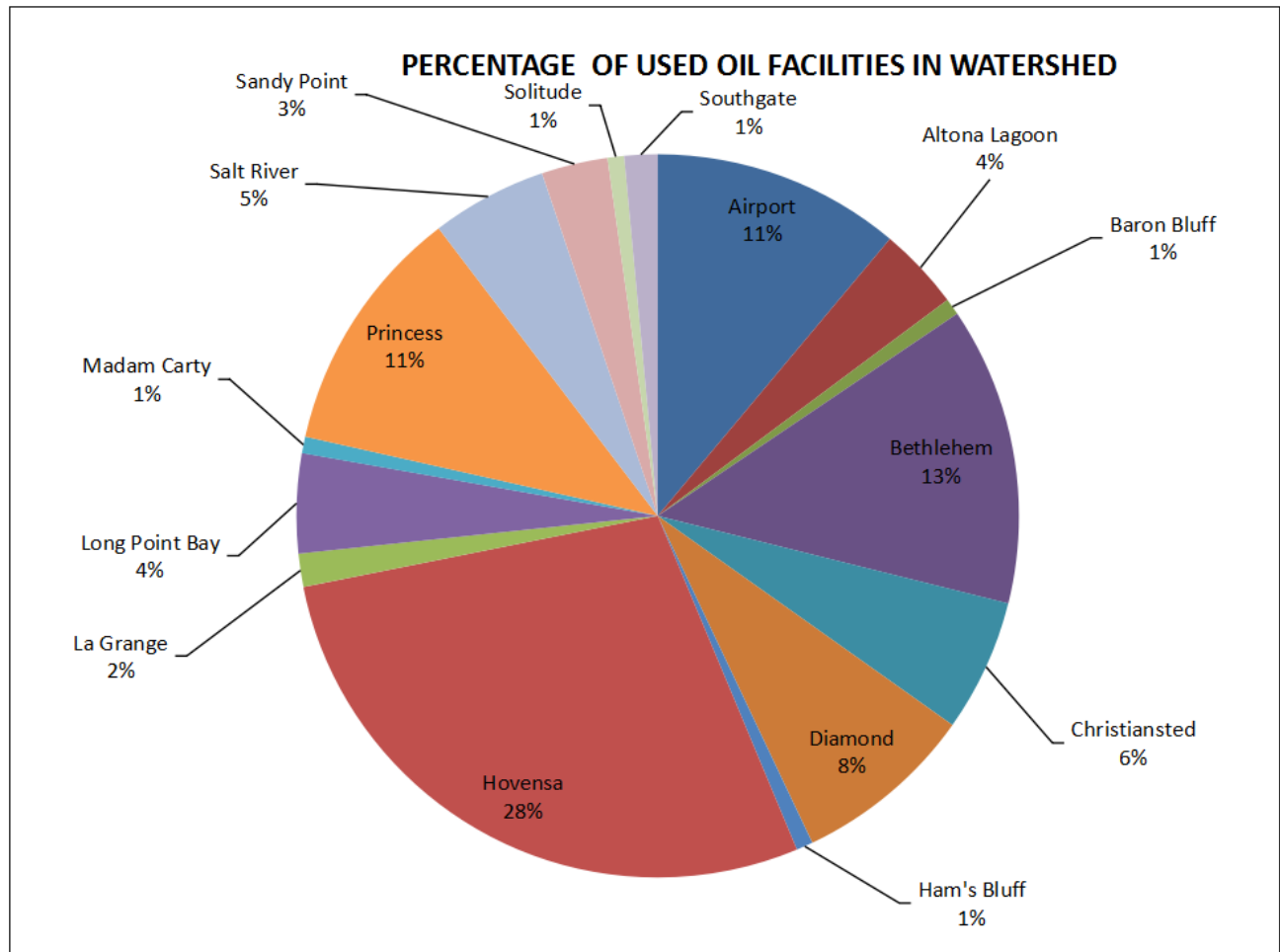
**Figure II.F.3.a STX USED OIL FACILITIES**



*Figure II.F.3.a* graph represents the distribution of 133 used oil facilities in their perspective watershed across the island of St.Croix. 130 of those facilities were issued permits for the generation and storage of used oil. The majority of facilities, a total of 38 or 28% are located in the Hovensa watershed.

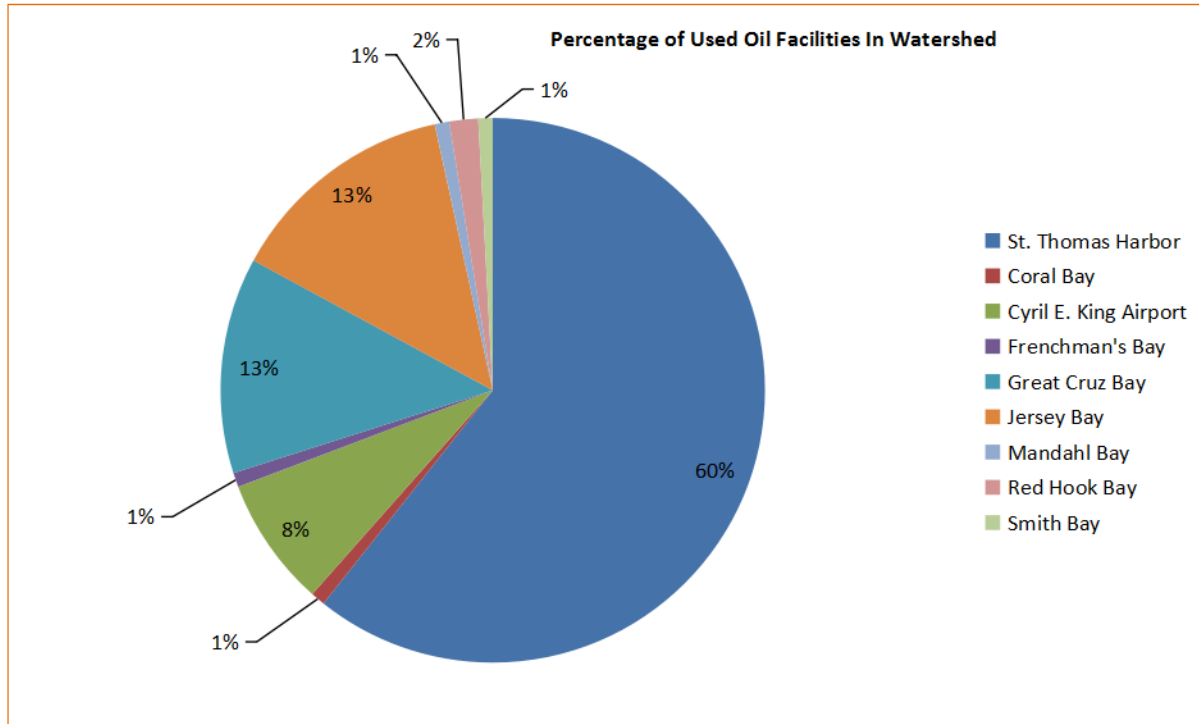
**Figure II.F.3.b Percentage of Used Oil Facilities STX**

*Figure II.F.3.b, the chart represents the percentage of used oil facilities in the perspective STX watershed.*



**Figure II.F.3.c Percentage of Used Oil Facilities STT/STJ**

Figure II.F.3.c, the chart represents the percentage of used oil facilities in the perspective STT/STJ watershed.



**Table II.F.3.a List of Used Oil Permit Holders – St. Thomas-St. John District**

Permit No.	Facility Name	Watershed	District
061J	Coral Bay Marina Services Inc.	Coral Bay	St. John
091J	Barry's Auto Service Center	Great Cruz Bay	St. John
113J	Boyson Inc	Great Cruz Bay	St. John
098J	Caneel Bay Resort	Great Cruz Bay	St. John
133J	Caneel Bay Resort - Shipyard	Great Cruz Bay	St. John
130J	Caravan Auto Service	Great Cruz Bay	St. John
088J	E. C. Gas & Service Station, Inc.	Great Cruz Bay	St. John
052T	Gas Station Auto Repair	Great Cruz Bay	St. John
129J	O' Connor Car Rental*	Great Cruz Bay	St. John
118J	P&S Trucking & Water Delivery	Great Cruz Bay	St. John
210J	Pimpy's Trucking	Great Cruz Bay	St. John
129T	St. John Development dba Texaco	Great Cruz Bay	St. John
125J	Varlack Ventures, Inc	Great Cruz Bay	St. John
087J	Westin St. John Hotel Company, Inc	Great Cruz Bay	St. John
105J	Public Works (susanaberg)	Grest Cruz Bay	St. John
139T	Carty's Auto Repaair, Inc.	St. Thomas Harbor	St. John

Permit No.	Facility Name	Watershed	District
218T	U.S. Department of Transportation - Bordeaux	Cyril E. King Airport	St. Thomas
219T	U.S. Department of Transportation - Fortuna	Cyril E. King Airport	St. Thomas
196T	U.S. Department of Transportation _ATC	Cyril E. King Airport	St. Thomas
217T	U.S. Departmet of Transportation - CEK Runway	Cyril E. King Airport	St. Thomas
080T	V.I. Port Authority, Transportation (STT)	Cyril E. King Airport	St. Thomas
133T	Air Center Helicopters	Cyril E. King Airport	St. Thomas
134T	Air St. Thomas	Cyril E. King Airport	St. Thomas
124T	Amco Auto Sales & Service Inc.	Cyril E. King Airport	St. Thomas
065T	Community Motors Inc.	Cyril E. King Airport	St. Thomas
079T	Marriott Frenchman's Reef & Morning Star Beach Resort	Frenchman's Bay	St. Thomas
037T	Caribbean Auto Mart	Jersey Bay	St. Thomas
037R	Caribbean Auto Mart, Inc (STT)	Jersey Bay	St. Thomas
123T	Compass Point Marina, Inc.	Jersey Bay	St. Thomas
099T	Heavy Materials, L.L.C.	Jersey Bay	St. Thomas
281T	Heavy Materials, L.L.C. - Quarry 3G Bovoni -	Jersey Bay	St. Thomas
283T	Innovative Telephone Plot 2A	Jersey Bay	St. Thomas
297T	Merchants Market	Jersey Bay	St. Thomas
11T	Olein Refinery & Lubricants	Jersey Bay	St. Thomas
092T	School Busing, Inc	Jersey Bay	St. Thomas
049T	Tropical Marine Inc	Jersey Bay	St. Thomas
122T	V.I. Housing Authority	Jersey Bay	St. Thomas
150T	VI Recycling Company	Jersey Bay	St. Thomas
224C	VI Recycling Company	Jersey Bay	St. Thomas
098T	Western Auto Supply Co (STT)	Jersey Bay	St. Thomas
267T	Olein Refinery & Lubricants	Jersy Bay	St. Thomas
090T	Contran Resorts, Inc. dba Mahogany Run Golf Course	Mandahl Bay	St. Thomas
Permit No.	Facility Name	Watershed	District
132T	Ritz-Carlton Resort	Red Hook Bay	St. Thomas
076T	Sapphire Beach Resort Marina	Red Hook Bay	St. Thomas
077T	Renaissance Hotel aba St. Thomas Palace Resort	Smith Bay	St. Thomas
001T	Allenton Auto Repairs	St. Thomas Harbor	St. Thomas
220T	Amalie Car Rental	St. Thomas Harbor	St. Thomas



<b>Permit No.</b>	<b>Facility Name</b>	<b>Watershed</b>	<b>District</b>
108T	American Eagle dba Executive Airlines	St. Thomas Harbor	St. Thomas
073T	American Yacht Harbor Marina	St. Thomas Harbor	St. Thomas
145T	Antilles Gas (STT)	St. Thomas Harbor	St. Thomas
111T	Auto Excellence	St. Thomas Harbor	St. Thomas
120T	Automotive Enterprises Inc. dba Midas	St. Thomas Harbor	St. Thomas
135T	Bohlke International Airway, Inc.	St. Thomas Harbor	St. Thomas
068T	Budget Car Rental	St. Thomas Harbor	St. Thomas
096T	Bussue Auto & Repair	St. Thomas Harbor	St. Thomas
096T	Bussue Auto & Repair, L.L.C.	St. Thomas Harbor	St. Thomas
149T	Castillo Auto Repair	St. Thomas Harbor	St. Thomas
139T	Challenger's Transport	St. Thomas Harbor	St. Thomas
140T	Chuck Kline Water	St. Thomas Harbor	St. Thomas
126T	Crowley Liner Services (STT)	St. Thomas Harbor	St. Thomas
063T	Crown Bay Marina	St. Thomas Harbor	St. Thomas
077T	CTF Hotel Management Corp	St. Thomas Harbor	St. Thomas
116T	Dependable Car Rental	St. Thomas Harbor	St. Thomas
047T	Diesel Dynamic Plus Inc.	St. Thomas Harbor	St. Thomas
138T	Discount Water Deliveries and Trucking Services	St. Thomas Harbor	St. Thomas
110T	Domino Oil Co. Inc.	St. Thomas Harbor	St. Thomas
041T	East End Wreck Shop	St. Thomas Harbor	St. Thomas
114T	Florida Coca Cola Bottling Comp.-St. Thomas	St. Thomas Harbor	St. Thomas
117T	Four Star Aviation, Inc.	St. Thomas Harbor	St. Thomas
100T	Ge-Tech Auto Repair	St. Thomas Harbor	St. Thomas
069TT	Green Hornet Environmental Management Inc	St. Thomas Harbor	St. Thomas
094T	Hertz Rent A-Car	St. Thomas Harbor	St. Thomas
051T	HI Performance Auto Repair	St. Thomas Harbor	St. Thomas
146T	Innovative Telephone	St. Thomas Harbor	St. Thomas
039T	It's Black It's White	St. Thomas Harbor	St. Thomas
223T	Joel's Auto Repair Tech	St. Thomas Harbor	St. Thomas
066T	John's Auto Center Inc.	St. Thomas Harbor	ST. Thomas
102T	La Vida Marine Center L.P/B.J. Management	St. Thomas Harbor	St. Thomas
089T	Lennards Auto Repairs	St. Thomas Harbor	St. Thomas
237 T	M &S Auto Inc	St. Thomas Harbor	St. Thomas
090T	Mahogany Run	St. Thomas Harbor	St. Thomas
151T	Matthews Auto Repairs	St. Thomas Harbor	St. Thomas
119T	Metro Motors	St. Thomas Harbor	St. Thomas
125T	Motor Trend	St. Thomas Harbor	St. Thomas

**Table II.F.3.b List of Used Oil Permit Holders – St. Croix District**

<b>FACILITY</b>	<b>LOCATION</b>	<b>PERMIT #</b>	<b>WATERSHED</b>
American Airlines	Henry E. Rohlsen Airport		Airport
Bohlke International Airways	19A Henry E. Rohlsen Airport	STX. C-115	Airport
Cape Air	Henry E. Rohlsen Airport		Airport
Caribbean Flight Center	1st Place Henry E. Rohlsen Airport	STX. C-227	Airport
Federal Aviation Administration	Henry E. Rohlsen Airport	STX. C-216	Airport
Federal Aviation Administration (LOC)	Henry E. Rohlsen Airport, Runway 10/28	STX. C-197	Airport
Flemings Transport	Cargo Building, Henry E. Rohlsen Airport	STX. C-136	Airport
GEC		STX-244	Airport
Gold Coast Yachts	Roebuck Industrial Park	STX-231	Airport
Port Authority	Henry E. Rohlsen Airport		Airport
Seaborne Airlines	Henry Rholsen Airport	STX-243	Airport
V.I. Enterprises d/b/a Avis Rent-A-Car	Henry E. Rohlsen Airport	STX. C-226	Airport
VI Air National Guard	Mannings Hill	STX-263	Airport
VI National Guard	Estate Mannings Bay/Airport	STX-204	Airport
Zenon	13-0A Estate Bethlehem	STX. C-128	Airport
Ace Rental	124-125 Sundial Park	STX-088	Altona Lagoon
Roach Auto Service	51 Boetzberg	STX. C-162	Altona Lagoon
St. Croix Marine Corp	5063 Est. Welcome, Gallows Bay	STX. C-083	Altona Lagoon
The Buccaneer, Inc.	#7 Estate Shoys, C'sted	STX. C-097	Altona Lagoon
Welco Gas Station	#16 Eliza's Retreat	STX. C-161	Altona Lagoon
Carambola Beach Resort & Spa	Estate Davis Bay, St. Croix	STX. C-237	Baron Bluff
Aureo Diaz Housing Authority	#5 Bethlehem	STX. C-156	Bethlehem
Basic Rentals	544 Mt. Pleseant	STX. C-223	Bethlehem
Bryan's Marine Service	180 Estate Upper Love, St. Croix	STX. C-178	Bethlehem
Contractor's Concrete	#15 Mount Pleasant	STX. C-221	Bethlehem
Cruzan Environmental Services, Inc.	31-A Estate Lower Love	STX. C-011	Bethlehem
Dan's Trucking & Trash Removal	1-1 Estate Slob, St. Croix	STX. C-238	Bethlehem
Dept of Agriculture	Estate Lower Love, St. Croix	STX. C-187	Bethlehem
First Choice Auto Repair	Kings Hill	STX-267	Bethlehem
Francis Water Service, Sales & Delivery	256 Estate Glynn, C'sted	STX. C-170	Bethlehem
Ken Transmission	25 Estate Whim	STX. C-177	Bethlehem

<b>FACILITY</b>	<b>LOCATION</b>	<b>PERMIT #</b>	<b>WATERSHED</b>
Ramco Transmission	353 Estate Mt. Plessen	STX. C-171	Bethlehem
Stanley and Stanley Garage	60 Grove Place F'sted	STX. C-078	Bethlehem
The Quickie/ Oil Genie Storage	Mobile Transport	STX. C-207 T	Bethlehem
V.I. Asphalt Product, CORP.	13 H Estate Bethlehem		Bethlehem
VI National Guard	10A & 18 VICORP Land, Estate Bethlehem	STX. C-081	Bethlehem
VI Paving	13 GA Estate Bethlehem	STX. C-137	Bethlehem
WAPA Maintenance	Estate Glynn	STX-242	Bethlehem
Innovative St. Croix	2A Estate Mount Pleasant	STX-164	Bethlehem
Hotel On The Cay	P. Cay Christiansted	STX-257	Christiansted
Olympic Sales, Inc.	1103 Richmond	STX. C-146	Christiansted
Rodney Auto Repair	62 East Street C'sted	STX. C-033	Christiansted
Seaborne Airlines	Watergut	STX-141	Christiansted
St. Croix Radiator Auto Service, Auto Repair	12 Orange Grove	STX. C-036	Christiansted
Virgin Island Fire Dept	Plot #16 Estate Richmond	STX. C-186	Christiansted
WAPA	C'sted		Christiansted
Anthony Auto Repair	6 J Hogensburg, St. Croix	STX. C-143	Diamond
Carambola Golf Club, LLC.		STX-266	Diamond
Cruzan VIRIL, LTD	3 & 3A Estate Diamond	STX. C-213	Diamond
Dept of Human Services	19 Estate Diamond, St. Croix	STX. C-249	Diamond
Frank's Garage	12-D Estate Diamond	STX. C-155	Diamond
Heavy Material	1 & 5 A Estate Montpelier	STX. C-245	Diamond
Human Services	19 Estate Diamond, St. Croix	STX-249	Diamond
Karim Service Station	#138 Estate Carlton	STX. C-132	Diamond
P.C Landscaping	Estate Grove	STX-262	Diamond
Paradise Bottling Inc.	17 C Hogensburg	STX. C-167	Diamond
Universal Towing	11 Diamond		Diamond
Aggregate, Inc.	187 Hams Bay	STX. C-192	Hams Bluff
Adcon Environmental, Inc.	9 Estate Cottage, St. Croix	STX. C-250T	Hovensa
Adcon Environmental, Inc.	9 Estate Cottage, St. Croix	STX. C-251	Hovensa
Antilles Gas Corp	# 9 Estate Pearl, St. Croix	STX. C-144	Hovensa
Atlantic Trucking	9003 Estate Pearl, Suite 3	STX. C-205	Hovensa
Bates Trucking	61 & 61A Castle Coakley, St. Croix	STX. C-126	Hovensa
Bengoa's International, Inc.	6041 Castle Coakley	STX. C-240	Hovensa
Better Engine Service & Tires	41 Castle Coakley, St. Croix	STX. C-127	Hovensa
Bunkers of St. Croix	27 Castle Coakley, St. Croix	STX. C-160	Hovensa
Caribout VI, Inc.	10 Peters Rest, St. Croix	STX. C-140	Hovensa

<b>FACILITY</b>	<b>LOCATION</b>	<b>PERMIT #</b>	<b>WATERSHED</b>
Centerline Care Rental, Inc.	3 Estate La Reine, St. Croix	STX. C-131	Hovensa
Chitolie Trucking	Plots 2 & 4 Casava Gardens, St. Croix	STX. C-174T	Hovensa
Chitolie Trucking	2 & 4 Casava Gardens, C'sted	STX. C-093	Hovensa
Dept of Public Works	Anna's Hope St. Croix	STX. C-163	Hovensa
Dynamic Innovative, Corporation	36 Castle Coakley	STX. C-246T	Hovensa
Fernando Marte	86 Castle Coakley	STX. C-254	Hovensa
Francis Metal	95 Estate Cottage	STX. C-247	Hovensa
H & H Avionics	1st Place Henry E. Rohlsen Airport	STX. C-159	Hovensa
H & H Tire & Battery	61 B Castle Coakley	STX. C-031	Hovensa
H. H Tire Sales	Estate Castle Coakley	STX. C-031	Hovensa
HOVENSA, LLC.	Estate Hope	STX. C-002	Hovensa
M & T Trucking Services	RRZ 11303 Container Port	STX. C-175T	Hovensa
M & T Trucking Services	RRZ 11303 Container Port Kingshill	STX. C-236	Hovensa
Marco St. Croix, Inc	222-223 Estate La Reine	STX. C-151	Hovensa
Marine Spill Response Corporation	1 Estate Hope, Marine Terminal	STX. C-018	Hovensa
Monarch Henavy Equipment Rental	82 Castle Coakley	STX. C-166	Hovensa
O'Neale's Trucking & Trailer Transport, Inc	1 Wilfred Allick Container Port	STX. C-058	Hovensa
Paradise Waste System, Inc.	129 Castle Coakley	STX. C-153	Hovensa
Public Works	6002 Anna's Hope	STX. C-006	Hovensa
Reliable Rentals	3 Estate Pearl	STX. C-176	Hovensa
Renissance	St. Croix Renaissance Park	STX-225	Hovensa
Schuster Services, L.L.C.	Plot 18 Estate Pearl	STX. C-182	Hovensa
Spartan Concrete Products, LLC.	9010 Estate Cottage	STX. C-223	Hovensa
St. Croix Diary Products, Inc.	4000 Sion-Farm	STX. C-038	Hovensa
St. Croix Renaissance Group, LLLP.	1 Estate Anguilla	STX. C-225	Hovensa
Super Automotive	#41 Castle Coakley	STX. C-211	Hovensa
VI Regulated Waste Management	Wilfred Allick Container Port	STX-193	Hovensa
VI Regulated Waste Management	#1 Wilfred Allick Container Port	STX. C-007 T	Hovensa
DO It Right Auto Repair	41 Mars Hill, F'sted, St. Croix	STX. C-181	La Grange
Old Time Auto Repair	20 Two Brothers	STX. C-172	La Grange
Andrew JN Marie	Plot 104 Concordia	Not Permitted	Long Point Bay
Champion Auto	47A Mars Hill, St. Croix	STX. C-150	Long Point Bay
Fernando Marte	40 Estate Concardia	STX. C-253	Long Point Bay
K & E Service, Inc.	513 Estate Whim	STX. C-194	Long Point Bay

<b>FACILITY</b>	<b>LOCATION</b>	<b>PERMIT #</b>	<b>WATERSHED</b>
Karims Service Station	138 Estate Carlton, F'sted	STX. C-132	Long Point Bay
Midwest Corp.	2 Estate Carlton, F'sted	STX. C-179	Long Point Bay
Divi Carina Resort/Grapetree Shore, Inc.	Divi Carina Resort. 5025 Turner Hole	STX. C-165	Madam Carty
Auto World, LLC.	12 A, La Grande Princesse	STX. C-228	Princess
David Auto Repair	3C La Grande Princess, St. Croix	STX. C-152	Princess
Europa Motorwork	1 La Grand Princess	STX. C-147	Princess
Hendricks International, Inc.	14 La Grande Princess	STX. C-130	Princess
J & F Auto Zone	36-A La Grande Princess	STX. C-200	Princess
Jeff & Terry Auto Repair	3001 Miracle Mile	STX. C-195	Princess
Metro Motors, Inc.	7 Golden Rock, C'sted	STX. C-074	Princess
Nat's Auto Repair	122 Little Princess		Princess
OSU Buckeye, LLC dba Target Tires	3002 Estate LTL Princess Plot 1K	STX. C-235	Princess
PM's Auto, Inc.	1 La Grande Princess	STX. C-149	Princess
St. Croix Fereign Auto Sales Corp.	1 C Miracle Mile	STX. C-036	Princess
Tropical Car of St. Croix	12 A La Grande Princess	STX. C-032	Princess
UDI Management, Inc. DBA Car Hunters/Chewy	34 A La Grande Princesse	STX. C-252	Princess
Yanez Enterprises	Old Nissan	STX-268	Princess
Caribbean Auto Mart	1-B Estate Glynn, St. Croix	STX. C-071	Salt River Bay
Echo Valley	#236 Estate Glynn	STX. C-239	Salt River Bay
Gold Coast Yachts	Estate Salt River	STX-086	Salt River Bay
Lamberts Brothers d/b/a Toyota	Plot 1 Estate Body Slob	STX. C-208	Salt River Bay
Marvellous Auto Repair	66 Estate Glynn	STX. C-222	Salt River Bay
RC Ible Auto Repair	47 Estate Glynn	STX. C-139	Salt River Bay
Unique Auto Body Repair	Plot # 59 Estate Glynn	STX. C-168	Salt River Bay
Abrahmson Enterprises, Inc.	28-29 Hannah's Rest, St. Croix	STX. C-134	Sandy Point
Federal Aviation Administration	10 Estate White Lady	STX. C-215	Sandy Point
Federal Aviation Administration (Traffic Control)	Estate Recovery, Plot #50251	STX. C-220	Sandy Point
University of The Virgin Islands	Plot # 1 Golden Grove	STX. C-169	Sandy Point
Sage Investments d/b/a East Marine	90 Estate Solitude	STX. C-229	Solitude
High Times VI, LLC.		STX-269	Southgate
STX. Financial Center, Inc. d.b.a Green Cay Marina	56 & Rem Parcel No. 2, Southgate Farms	STX. C-248	Southgate

#### 4. Hazardous Waste Program

The Virgin Islands implements its own hazardous waste program independent of the US Environmental Protection Agency. All facilities which generate, store, transport and/ or collect hazardous waste must meet the Territory's requirements except where federal requirements are more stringent or broader in scope.

The Virgin Islands has not adopted the Universal Waste Rule. As such, no waste may be managed as universal waste. Rather, all hazardous waste in the Virgin Islands must be managed under traditional hazardous waste requirements based on total monthly waste.

Any person engaged in the generation, storage, transportation, treatment, disposal or recovery of hazardous waste shall obtain a permit thereof from the Department of Planning and Natural Resources. Permits must be renewed annually.

**Table II.F.4.a List of Hazardous Waste Permits in USVI**

<b>Permit Number</b>	<b>Facility Name</b>	<b>Location</b>
T-043	Kmart	9000 Lockhart Garden, St. Thomas
C-042	Kmart	Remainder Matriculate, St. Croix
T-041	Kmart	26-A Tutu Park Mall, St. Thomas
C-036	O'Neale Trucking	Wilfred Allick, St. Croix
C-038T	O'Neale Trucking	Wilfred Allick, St. Croix
C-069	Seaborne Airlines	St. Croix
C-191	VIPA	Rohlsen, St. Croix
C-023	Toyota	#1 Estate Body Slob, St. Croix
C-057	Adcon Environmental	Fort Louise Augusta Restrooms
C-063	VI Salvage d/b/a 180 Auto	236 Estate Glynn, St. Croix
C-024	Bunkers Of St. Croix	27 Castle Coakley, St. Croix
C-022	Caribbean Auto Mart	13 Glynn, St. Croix
T-028	FAA	Cyril E. King Airport, St. Thomas
C-025	FAA	#10 Estate White Lady, St. Croix
C-061	JFL Hospital	Estate Diamond, St. Croix
T-054	VIHA-Tutu Apartments	#387 Anna's Retreat, St. Thomas
C-041	VIHA-Paradise	Paradise, St. Croix
T-051	VI Army National Guard	Estate Nazareth, St. Thomas
C-052	VI Army National Guard	Estate Manning, St. Croix
C-002T	O'Neale's Trucking	Wilfred Allick, St. Croix
C-001T	VI Regulated Waste Mgt	Wilfred Allick, St. Croix
C-037	VI Regulated Waste Mgt	Wilfred Allick, St. Croix
T-190	TSA	Cyril King Airport, St. Thomas
C-040T	VI Regulated Waste Mgt	Wilfred Allick, St. Croix
T-032	FAA-Tower Control	St. Thomas
C-026	FAA-Recovery	St. Croix
C-027	FAA-ILS	St. Croix

<b>Permit Number</b>	<b>Facility Name</b>	<b>Location</b>
T-031	FAA-Radar Facility	St. Thomas
T-030	FAA-Navigation Facility	St. Thomas
T-042	VIHA-Bovoni Apartments	Bovoni, St. Thomas
C-044	Managed Freight	Richmond, St. Croix
T-045	Total Petroleum	St. Thomas
T-046	RLS Hospital	Sugar Estate, St. Thomas
C-048	Seaborne	St. Croix
C-049	Hams Bluff Lighthouse	Hams Bluff, St. Croix
T-050	P&P	Sub Base, St. Thomas
C-191	TSA-Henry Rohlsen	St. Croix
T-053	DOE-LAGA Building	Tutu-St. Thomas
C-055	VI National Guard	Sprat Hall, St. Croix
C-056	VI National Guard	Hams Bluff, St. Croix
T-140T	VI Regulated Waste	Contant, St. Thomas
C-062	VI Rum	Diamond, St. Croix
C-066	Buccaneer Hotel	St. Croix
C-067	Bohlke International	Henry Rohlsen Airport, St. Croix
C-072	Salt River Restoration	Salt River, St. Croix
T-021	Heavy Materials, LLC.	St. Thomas
C-058	Gallows Bay	Gallows Bay, St. Croix
C-059	DOL-STX	Sunny Isles, St. Croix
T-060	DOL-STT	St. Thomas

### *5. Brownfields Program*

A brownfield is a property of which the expansion, redevelopment, or reuse may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. It is estimated that there are more than 450,000 brownfields in the United States.

Cleaning up and reinvesting in brownfield properties increases local tax bases, facilitates job growth, utilizes existing infrastructure, takes development pressures off of undeveloped, open land, and both improves and protects the environment.

In 2009 DPNR conducted nine Phase I Environmental Site Assessments for properties located throughout the Territory. The purpose of these environmental assessments was to describe current site conditions and to establish if there was evidence that a release of oil or hazardous materials had occurred at the site or that a threat of release exists. Such a release could represent a liability to the property owner or operator.

**Table II.F.5.a List of Brownfields Sites in USVI**

<b>Facility Name</b>	<b>Location</b>	<b>Recommendation</b>
15 & 16 Prince Street & 54 & 55-B Hospital Street	Frederiksted, St. Croix	No further oil and/or hazardous materials assessments activities are necessary at this time
6, 6-a & 8 Penitentiary Land	Christiansted, St. Croix	Further assessment activities are necessary at the site. Phase II Assessment was recommended
10-13A West Lane	Christiansted, St. Croix	No further oil and/or hazardous materials assessments activities are necessary at this time
15 Sub Base	Sub Base, St. Thomas	Further assessment activities are necessary at the site
24 & 25 Sub Base	Sub Base, St. Thomas	Further assessment activities are necessary at the site.
72 Lindbergh Bay	Charlotte Amalie, St. Thomas	Further assessment activities are necessary at the site.
27 Strand Street	Christiansted, St. Croix	No further oil and/or hazardous materials assessments activities are necessary at this time
4 Wimmelskaft Gade, back Street	Charlotte Amalie, St. Croix	No further oil and/or hazardous materials assessments activities are necessary at this time
Oscar E. Henry Customs House	Frederiksted, St. Croix	No further oil and/or hazardous materials assessments activities are necessary at this time. However, mold assessment and abatement activities are necessary to eliminate health hazards

During FY2014 and FY2015, no further actions were done against existing or new facilities; however, the program continued routine assessments of sites as needed.



## **G. Wetlands Programs**

### **1. BACKGROUND**

The quality of life in the Virgin Islands and the strength of the Virgin Islands economy depend heavily on maintaining and restoring the health of the nearshore coastal environment; including wetlands, mangroves, coral reefs, and seagrass beds; communities that form a tightly linked ecosystem connected through hydrology and runoff. For the past several decades, population growth has compounded the effects of poor land use practices. This is manifested in catastrophic runoff, sedimentation, nutrient enrichment from failed septic systems and pollutant contamination of coastal wetlands, waters, and bays. Various studies have associated land use in upland areas of watersheds are adversely affecting low-lying terrestrial and marine resources. Nevertheless, the extent of the impacts across the Territory is unknown, and a comprehensive assessment of the watersheds and wetlands of the VI is not presently complete. Additionally, the existing datasets maintained by public institutions have not been made available in published documents or placed into a web-accessible database for resource managers and public use. DPNR has standards applicable to wetlands in the USVI Water Quality Standards [VIRR §186-4(a)].

### **PHASE I**

The first phase of the wetlands inventory project, titled, “*The Virgin Islands Wetlands and Riparian Areas Inventory: A Pilot Study to Characterize Watersheds and Wetland Systems, Phase I*”, was completed in 2004 by the Department of Planning and Natural Resources, in partnership with Island Resources Foundation (IRF) and the University of the Virgin Islands (UVI). Phase I of the project focused on a limited assessment of watershed/wetland ecosystems. Geographic Information System (GIS) technology was used to produce an inventory of watersheds and wetlands (type and location) throughout the U.S. Virgin Islands (USVI), produce GIS map products, and data for statistical and spatial analyses. Eighteen (18) priority watersheds (of the 50 in the USVI) were assessed and characterized using a matrix based on categorizing watersheds into three groups; (i) undisturbed, (ii) moderately disturbed, and (iii) highly disturbed watersheds. Vegetation characterization, water chemistry sampling, sedimentation history, and an Index of Biological Integrity assessment were completed within each selected watershed. The information and data gathered from the pilot study of Phase I were used by the project collaborating institutions to determine the proposed Scope of Work for Phase II of the project.

### **PHASE II**

The “*Virgin Islands Wetlands and Watersheds Characterization Phase II: Inventory, Monitoring, Assessment, Management, and Education in the U.S. Virgin Islands*”, began in 2007 and was designed initially to complete the watershed/wetlands assessment for the Virgin Islands by compiling existing data from multiple projects and sources, filling data gaps, developing appropriate management strategies, and educating the public about the importance of wetlands and watersheds.

Phase II was completed in late 2010. The following major outputs of Phase II were delivered to DPNR via CDs and DVDs:

1. Framework for the Management of Wetlands in the US Virgin Islands;
2. WETLANDS Book;
3. WETLANDS Book (Web Version);

4. GIS Layers (Folder);
5. MAP\_CRX;
6. Map\_JOHN;
7. Map\_TOM;
8. QUALITY ASSURANCE PROJECT PLAN; and
9. Final Technical Report.

## **2. TYPES OF WETLANDS**

Wetlands provide a range of resources and services that contribute to the economic and social development of the USVI. However, various development activities result in significant degradation of the very resources that support the development of the USVI. In an effort to improve the overall development process to minimize the negative anthropogenic effects, policies, laws, and initiatives have been developed to protect our natural resources.

The primary purpose of these associated laws and programs is to ensure that development can be sustained, and the quality of life can be maintained for current and future generations of Virgin Islanders while at the same time protecting these natural resources. As defined by 12 VIRR §184 de (2007), “Wetlands means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

Each type of wetland is formed under a specific set of conditions and will typically have associated plants (flora) and animals (fauna).

### Type 1: Watercourses

A watercourse is defined in the Virgin Islands Code as “... any stream with a reasonable well-defined channel, and includes streams which have a permanent flow, as well as those which result from the accumulation of water after rainfall and which regularly flow through channels formed by the force of the waters.” See 12 V.I.C. § 123(b).

In the USVI, watercourses are commonly referred to as ghuts/guts. These ghuts are the main drainage channels for discharge of runoff from rainfall events. In addition to that function, ghuts provide a range of services that support the development processes of the USVI. Ghuts also contain permanent pools of freshwater, which function as habitats for rare species of aquatic animals (e.g. Mountain Mullet and American Eel). Ghuts take a range of shapes, sizes, and depths, depending on the terrain and the size of the watershed. The vegetation found inside ghuts also varies accordingly, but two distinct forest types have been associated with ghuts. These forest types are Gallery Moist Forest and Gallery Shrubland.

Ghuts of Interest are those that meet any one of the following criteria:

- Ghuts with permanent pools
- Ghuts currently used for recreational purposes
- Ghuts supporting other community uses

- Ghuts containing critical habitats
- Ghuts supporting endangered species of plants or animals
- Ghuts containing significant historic, archeological, or cultural resources
- Ghuts facing significant threats – e.g. dumping from construction activities or used for sewage disposal.

St. Croix	St. John	St. Thomas
Adventure Stream	Battery Gut	Bonne Resolution (Dorothea) Gut
Bethlehem Gut	Fish Bay Gut	Caret Bay/Sorgenfri Ghut
Butler Bay Ghut	Guinea Gut	Contant Gut
Caledonia Gut	Johnny Horn Ghut	deJongh Gut
Canaan Ghut	Living (Reef Bay) Gut	Magens Bay Gut
Cane Bay Ghut		Nadir Gut
Creque Gut		Neltjeberg Gut
Fountain Ghut		Santa Maria Gut
Harden Gut		Savan Gut
Jolly Hill Gut		Turpentine Run
La Grange Gut		
Mahogany Gut		
River Gut		

#### Type 2: Marshes

A marsh is defined as “a water-saturated, poorly drained area, intermittently or permanently water covered, having aquatic and grass-like vegetation” ([http://water.usgs.gov/water-basics\\_glossary.html](http://water.usgs.gov/water-basics_glossary.html)). Marshes in the USVI are typically fresh-water wetlands formed in depressions in the landscape and maintained by surface or subsurface flow of water.

#### Type 3: Swamps

A swamp is defined as “an area intermittently or permanently covered with water and having trees and shrubs” ([http://water.usgs.gov/water-basics\\_glossary.html](http://water.usgs.gov/water-basics_glossary.html)). In the USVI, swamps are generally located on the coast. Water level is determined mainly by surface runoff during the rainy season, but brackish conditions exist in areas of the swamp closest to the sea, or during the dry season. As a result

of this salinity gradient, plants adapted to both fresh water and saline conditions may be found in some swamps (e.g. Magen's Bay swamp in St. Thomas).

#### Type 4: Artificial Ponds and Impoundments

"A pond is a body of standing water, either natural or man-made, that is usually smaller than a lake" (<http://en.wikipedia.org/wiki/Pond>). In the USVI, man-made (artificial) ponds are created primarily for provision of water for agricultural purposes. Increasingly, ponds are created for storm-water management purposes on sites with large developments or on sites that are periodically flooded. An impoundment is a body of water resulting from the placement of a stone dyke or earthen berm across a natural drainage channel (ghut). Impoundments were used in the early 1900s as part of the system of collection and distribution of potable water, particularly on St. Croix. Currently, impoundments are constructed and used mainly to provide water for agricultural purposes. Both ponds and impoundments provide habitats for a range of resident and migratory species of water birds.

#### Type 5: Salt Ponds

A salt pond is a coastal wetland that is separated from the sea by a low sandbank, sand dune, or similar feature. Salt ponds are formed over long periods by the accretion of reefs, growth of mangroves, or the accretion of sand along the mouth of an embayment. Once the pond is separated from the sea, water exchange between the two is primarily through the separating barrier. Depending on the size and structure of the salt pond, openings to the sea may be created during the rainy season if the pond collects significant amounts of surface runoff. The barrier may also be overtopped by the sea during periods of significant wave action. Such wetlands are commonly called salt ponds because the water in the ponds becomes hypersaline during the periods when the water level is low; that is, the water becomes more saline than ordinary sea water. In some ponds, the salt can be seen as a crystalline deposit along the edges of the pond or towards the landward portion (back) of the pond.

Salt ponds provide a habitat for many species of birds, but few plants are adapted to survive in such hypersaline conditions. Plants typically found at salt ponds are Black Mangrove, White Mangrove, and the shrubs Saltwort and Sea Purslane.

#### Type 6 Lagoons

A lagoon is defined as "a stretch of salt water separated from the sea by a low sandbank, coral reef or similar natural or manmade feature." In the USVI, lagoons are typically formed by one of two processes. One process involves wave action moving sand and gravel along the shoreline, periodically closing the mouth of an embayment. Sandbars are sometimes breached by strong wave action, particularly during storms. Sandbars/sandbanks often become colonized and stabilized by plants, which can result in the closure becoming semi-permanent or permanent over time. The second process involves the formation of a sandbar across the mouth of a seasonal stream (ghut). In such cases, the sandbar is periodically breached by wave action or by surface runoff discharged through the ghut after rainfall events. Lagoons can have very restricted access or narrow channels that permit fairly consistent flows between the lagoon and the sea. Lagoons are ecologically productive sites, providing habitats for a range of fish and bird species, including migratory species of birds. Examples of lagoons are the Altona Lagoon (St. Croix) and Benner Bay/Mangrove Lagoon (St. Thomas).

#### Type 7: Seagrass beds

Seagrass beds are ecosystems dominated by marine grasses. Seagrass beds typically inhabit shallow nearshore areas but can be found in a range of depths from shallow lagoons to open coastal areas 60 feet in depth. There are 40-50 species of seagrasses world-wide, and most are found in the tropics. Though seagrass beds are dominated by seagrasses, the communities contain many species of algae. Seagrass beds function as important nursery areas for a wide variety of marine organisms (including important food species). Seagrass beds also function to colonize open areas, and their root systems help to stabilize unconsolidated soils.

### ***3. PRIORITIES FOR MANAGEMENT OF WETLANDS***

The major issues and priorities currently relevant to wetlands are:

#### 1. Integration of the Policy Framework

There are several laws relevant to the management of wetlands, and those laws are administered by several agencies. The programs managed by the various agencies are usually in line with national priorities. In 2010, the Department of Planning and Natural Resources initiated activities to develop a Wetlands Management Program. That program was to establish a mechanism for integration of the wetlands-related policies and programs of the public agencies in the U.S. Virgin Islands, including the involvement of community organizations. However, since that time the program integration has stalled.

#### 2. Reduction of Threats

There are significant threats to wetlands and associated resources from natural and man-made sources. The man-made threats are primarily from land use activities (e.g. changed drainage, sediment from construction activities, filling of wetlands, disposal of solid waste and effluents), but also from illegal practices (e.g. solid waste disposal). These threats reduce the benefits provided by wetlands. While threat reduction is a priority of the management agencies, the most important require changes in attitudes and practices of individuals in the community.

#### 3. Storm Water Management

Due to the topography of the islands, most development activities (including residential development) involve the channeling of surface runoff from rainfall events. Poor storm-water management practices result in damage to wetlands, social infrastructure (e.g. roads), and private property. Individuals and companies undertaking developments must therefore use best practices in the design of stormwater management systems.

#### 4. Future Demand for Goods and Services from Wetlands

The existing uses of wetlands are expected to continue. There is increased use for recreation, including eco-tourism ventures. With increased development activity, particularly larger resort projects, there is increased use of wetlands for storm-water management. It is forecasted that global warming will increase rainfall variability and intensity. As such, wetlands will play an even greater role in flood protection.

## 5. Information Management

In order to make informed decisions concerning the management of wetland resources, the regulatory agencies are constantly updating the databases on physical conditions and status of the resources. The community should become engaged in the management process, especially by sharing information on the use of wetlands and associated resources, and threats to such resources. The 2019 revision to the USVI Water Quality Standards has additional language that is more protective of wetlands.

## **4. FRAMEWORK FOR MANAGEMENT OF WETLANDS IN THE USVI**

### **Rationale for Development of a Wetlands Management Framework**

Due to the range of benefits provided by wetlands, as well as their distribution across the topographic landscape, wetlands fall within the area of responsibility of several Territorial and U.S. Federal agencies. As such, wetlands form critical components of several programs designed to maintain the economic growth of the USVI and quality of life of its residents. Environmental and development programs in which wetlands play a critical role include:

(a) Agriculture Development – Impoundments were established to collect water for agricultural uses. The 1979 report on the USVI Sediment Reduction Program noted that there were 278 impoundments in the USVI in 1979 (BC&E/CH2M Hill, 1979).

(b) Reduction in Non-Point Source Pollution – The 1979 Sediment Reduction Program was designed around the functioning of impoundments as sediment traps. The existing Earth Change Permit process was similarly designed to reduce soil erosion and sedimentation of waterways, and development activities affecting ghuts are regulated within this process.

(c) Coastal Zone Management – Wetlands form one of the nine (9) Enhancement Areas for the USVI Coastal Zone Management Program, as required by Section 309 of the Coastal Zone Management Act, 1972.

(d) Wildlife Management – Wetlands function as important habitats for a range of wildlife species, and associated management interventions range from periodic resource assessments to designation and management of wildlife reserves by both Territorial and Federal agencies.

(e) Water Resources Management – Surface water forms one of the components of waters of the USVI as defined by 12 V.I.C. § 182(f). While there is no water resource management program, the non-point source pollution program was developed to protect the quality of the waters of the USVI for a range of social and ecological purposes.

(f) Flood Control – Storm-water management in development activities and general flood control are managed by two separate agencies of the Government of the USVI (Department of Public Works and Department of Planning and Natural Resources).

(g) Waste Management – Wetlands are used as part of the waste disposal strategy in the USVI, in that; a number of municipal sewage treatment plants discharge effluent directly to ghuts. Discharge of

untreated sewage to wetlands also takes place when there is equipment failure. Additionally, the two municipal landfills are located in wetlands.

Despite the above-mentioned program imperatives that involve wetlands, there is no wetlands program in the USVI. Attempts to establish a wetlands program include the 2006 draft wetlands conservation plan prepared by the Division of Fish and Wildlife and the current attempt by the Division of Environmental Protection. However, a wetlands program designed for a single agency to fulfill its mission objectives will not accommodate the aforementioned range of program needs. This is particularly true as a number of the uses of wetlands are conflicting across the various programs. What is needed is a unified approach that supports multiple policies and program objectives, and that prevents program conflicts. This unified approach to wetlands management is hereby termed the “Wetlands Management Framework for the U.S. Virgin Islands”.

The purpose of the Wetlands Management Framework is to ensure that all management interventions for wetlands in the U.S. Virgin Islands are designed based on a single policy and strategy and that institutional arrangements are established to minimize waste and conflicts while maximizing the impacts of each management intervention.

### **Current Wetlands Management Framework**

There is a variety of laws that provide the foundation for a wetland management framework, and there are both Federal and Territorial agencies that are involved in programs and initiatives affecting wetlands. Though there is this range of institutions and programming that affect wetlands in one way or another, the focus on wetlands appears to be tangential at best. Programs and resource management strategies that should have wetlands management as a central feature have either been inexplicably terminated (Sediment Reduction Program), inconsistent in application (Areas of Particular Concern), relegated wetlands to a low level of priority (Coastal Zone Management 309 Program) or treat wetlands as tangential (Water Pollution Control Program and 2005 Comprehensive Wildlife Conservation Strategy for the USVI).

Wetlands are mentioned in the priority goals and objectives identified in the 2018 USVI Coral Reef Management Program, so some focus from the DPNR Division of CZM is increasing. Two of the four priority sites (St. Thomas East End Reserve and St. Croix East End Marine Park) include large areas of wetlands, and CZM, including its St. Croix East End Marine Park (EEMP) Program, has been including these wetland areas more and more in watershed management plans.

However, the absence of policies and guidelines for wetlands management inhibit the development or integration of relevant programs. Even with policies to increase protections for wetlands approved by the Coastal Zone Management Commission in 2006, rules and regulations need to be promulgated and adopted within the coastal zone management program. Further, the single attempt to develop a wetlands conservation plan (Platenberg, 2006) focused on one district, and has not been approved or implemented. Lastly, there is no institutional arrangement that supports information sharing and collaborative programming, both necessary to ensure the development of synergies between the various programs.

## **5. TRENDS AND MAJOR ISSUES CURRENTLY RELEVANT TO WETLANDS**

According to the 2018 US Virgin Islands Coastal Zone Management Program, Section 309 Assessment and Strategy, the overall trend is that there is little or no change. This lack of change appears to reflect observations in the field. The US Virgin Islands has seen a significant economic downturn since 2002 and there has been minimal land development during that time. The majority of the development has been small scale residential, rather than larger commercial developments. Land-cover change analysis for St. Croix (excluding St. Thomas and St. John) indicates a trend of decreasing cultivated areas that either revert to forest or are developed into small scale residential development.

The trends that have been identified are:

(a) Reduction in Acreage of Wetlands in the U.S. Virgin Islands – Damage to wetlands and loss of acreage has been chronicled in several reports (Sladen 1986, Stengel 1998). The major activity contributing to loss of wetlands is (past and current) development activity, primarily industrial, resort, and marina development. The continued generation of a range of other threats to wetlands and associated resources (Gardner et al, 2008) remain a cause of concern. While as noted above in the first paragraph of this section, the overall trend is that there is no change, consistent sediment buildup, particularly from the effects of the 2017 Hurricanes Irma and Maria hitting the Territory, has caused a general trend to reduce the overall acreage as well as shrinking the depth of useable acreage for flora and fauna.

(b) Continued Provision of Resources and Services – Wetlands continue to provide a range of resources and services (Virgin Islands Department of Agriculture 1973, Smith 1989, Kelsey et al 2005, Rennis et al 2006, Gardner et al 2008, Valiulis 2009). In addition to the provision of water and food, the environmental services provided by wetlands include wildlife habitats, water purification, groundwater recharge, flood reduction, and storm protection. This trend continues into 2018, however, with sediment buildup as noted above, potential for reduced useable space can cause reduced resources and services, making it difficult for wetlands to flourish without implementation of future management practices.

(c) Contribution to Economic Development – Wetlands have played a significant role in the economic development of the U.S. Virgin Islands (Gardner et al, 2008) through the provision of water for domestic, agricultural, and industrial purposes. Current direct contributions include provision of recreational opportunities, educational opportunities, and water for agriculture.

The major issues and priorities are:

(a) Need for an Integrated Policy Framework – There are several sets of VI laws and Code relevant to the management of wetlands and are administered by different agencies. Though the programs managed by the various agencies are usually in line with national priorities, there is a need to establish a mechanism for integration of the local wetlands-related policies and programs of the



public agencies in the U.S. Virgin Islands, including the involvement of non-governmental organizations.

(b) Existence of Significant Threats – There are significant threats to wetlands and associated resources from natural and man-made sources. The man-made threats are primarily from land use activities (e.g. changed drainage, sediment from construction activities, filling of wetlands, disposal of solid waste and effluents), but also from illegal practices (e.g. solid waste disposal). These threats reduce the benefits provided by wetlands. While threat reduction is a priority of the management agencies, success of management interventions requires changes in attitudes and practices of individuals and institutions in the community.

(c) Need for Improved Storm Water Management – Due to the topography of the islands, most development activities (including residential development) involves the channeling of surface runoff from rainfall events. Poor storm-water management practices result in damage to wetlands, social infrastructure (e.g. roads), and private property. Individuals and companies undertaking developments must therefore use best practices in the design of storm-water management systems.

(d) Future Demand for Resources and Services from Wetlands – The existing uses of wetlands are expected to continue. There is increased use for recreation, including ecotourism ventures. With increased development activity, particularly larger resort projects, there is increased use of wetlands for storm-water management. It is forecasted that climate change will increase rainfall variability and intensity. As such, wetlands will play an even greater role in flood protection.

(e) Need for Improved Information Management – There is no structured program for research and monitoring of wetland resources. As such, data collection is sporadic, ad hoc, and not necessarily linked to institutional mandates or programs. Data and information are consistently lost. Additionally, databases compiled by Federal agencies are not utilized by USVI regulatory agencies for management decision making. In order to improve decision making in the development planning and development control processes, the environmental management agencies need to develop an overall data management strategy. That strategy should ensure compatibility of data collection regimes and data management systems, as well as establishment of data sharing mechanisms. The civil society institutions engaged in wetland initiatives should also be brought into the information management process.

Other issues requiring attention are:

(a) Community Perception of the Value of Wetlands – The continuing threats to wetlands and associated resources indicate that there is a general perception in the USVI that wetlands are not important. However, the conflicts that sometimes arise during public hearings for development projects often focus on environmental issues, including potential impact on wetlands. This contradiction suggests that there is no consensus in the community regarding the value of wetlands. This issue should be addressed in order to reduce conflicts within the development control process and enable the regulatory agencies and community to make informed decisions regarding tradeoffs in the development process.

(b) Climate Change – Climate change scenarios for the Caribbean suggest that sea level rise will be approximately 1.5 feet over the next century. This will result in inundation of some coastal areas, increasing acreage under wetlands, but also impacting negatively on social infrastructure and some major resources (e.g. aquifers). More immediately, increased intensity of storms and changing rainfall patterns are expected to create significant impacts on ecosystems, including wetlands. A comprehensive monitoring program should be established to support informed resource management decision making, particularly for critical or fragile ecosystems.

## **6. PROPOSED WETLANDS MANAGEMENT FRAMEWORK**

The Wetlands Wise Use Project of the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention) identifies the elements of an effective wetlands management program as:

- Appropriate Policy Framework;
- Appropriate Legal Framework;
- Appropriate Institutional Framework;
- Management Strategy;
- Management Plan/Action Plan; and
- Institutional Program/Annual Plan.

### **Appropriate Policy Framework**

The development of an appropriate policy framework is best guided by an environmental ethic, which provides the broad philosophical basis and guiding principles for policy and program development. The guidelines prepared by the Ramsar Secretariat on the wise use of wetlands (Davis, 1993) identify the following as principal elements of a national wetland policy:

- A. Improvement of institutional arrangements so that wetland policies can be fully integrated into the planning process; and the establishment of mechanisms and procedures for incorporating this integrated, multi-disciplinary approach into planning and execution of projects concerning wetlands.
- B. Review of existing legislation and government policies (including subsidies and incentives) including, where appropriate, application of existing legislation and policies, adoption of new ones, and use of development funds for wetlands.
- C. Increasing knowledge and awareness of wetlands and their values, including exchange of information, propagation of their benefits and values (a statement of which is given), review of traditional techniques, and training of appropriate staff.

- D. Review of the status of wetlands in the national context, including compilation of a national inventory, and definition of each wetland's particular values and conservation priorities.
- E. Addressing of problems at particular wetland sites, by integrating environmental considerations into their management, regulated utilization, establishment of management plans, designation as appropriate for the Ramsar List, establishment of nature reserves and, if necessary, restoration.

### **Appropriate Legal Framework**

The legal framework supports not only the development of regulations, but also provides an underpinning for the establishment of creative and evolving management and compliance strategies. Elements of an effective legal framework include:

- A. A framework law that addresses wetlands as a specific ecosystem requiring directed management intervention, that links the primary enabling legislation to other relevant legal instruments directed at other programs and development processes.
- B. Subsidiary legislation that facilitates the development of an effective institutional framework.
- C. Guidance and guidelines to support the use of a wide range of measures and instruments (regulatory, fiscal, and non-fiscal) to enable effective management interventions.

### **Appropriate Institutional Framework**

Although one public sector institution will be given the responsibility of being the lead agency for coordination of a territorial program, effective management will include collaborative arrangements between several public, private, and civil society institutions. An appropriate institutional framework will address the following:

- A. Collaborative programming, to assist in resolving conflicts, assist in making decisions relating to trade-offs, clarify roles and responsibilities of different stakeholders, and facilitate diverse stakeholder involvement.
- B. Development of an institutional coordinating mechanism that facilitates harmonization of management arrangements and institutional cultures (planning and decision-making systems, legal requirements in the various regulatory processes, reporting requirements and mechanisms, etc.).
- C. Shared information collection and management systems.

### **Management Strategy**

The territorial management strategy is meant to provide strategic focus, translating the policy framework into strategic directions for wetlands management over an agreed period. The territorial strategy should:

- A. Provide a structured framework for wetlands management, establishing the goals and objectives of the territorial program, and establishing guidelines and practices that link site management interventions to system management goals and objectives.
- B. Facilitate integration with other relevant planning strategies, such as those for tourism, biodiversity conservation, and protected areas.
- C. Facilitate integration with the economic development strategies and development control processes.
- D. Provide guidance on the design and implementation of a public engagement strategy.
- E. Provide a structured approach for coordinating the initiatives of the various institutions implementing wetlands-related activities.
- F. Provide a broader perspective for addressing site-specific issues.

### **Management Plan/Action Plan**

The wetlands management plan is the action plan for the strategy period, and should:

- A. Identify priority interventions for the strategy period, setting targets and identifying milestones.
- B. Assign institutional roles within each area of intervention.
- C. Establish coordinating mechanisms and structures.
- D. Identify resource requirements.
- E. Establish monitoring and evaluation guidelines and procedures for the implementation of the management plan/action plan

### **Institutional Program/Annual Plan**

Each institution with assigned roles in the management plan/action plan should establish an institutional plan designed to:

- A. Fulfill the institution's obligations identified in the Wetlands Strategy and Management Plan.
- B. Be responsive to the institution's legal mandate.

## **7. IMPLEMENTATION AGENDA**

If the above program elements are used as the guide for the development of a wetlands management program for the USVI, the process of development of an appropriate wetland policy will take a minimum of five (5) years. As such, establishment of some elements will proceed apace, rather than wait on the completion of the policy process. The following actions are proposed as the initial steps in the development of the wetlands management framework for the USVI:

1. Preparation of a Draft Wetlands Policy.
2. Preparation of a Wetlands Management Strategy and Action Plan.
3. Design of inter-agency management framework and preparation of an associated collaborative agreement.
4. Preparation of institutional work plans.
5. Development of data management policies and data management mechanisms<sup>1</sup>.
6. Establishment of framework management support systems (planning, communications, etc.).
7. Establishment and testing of data management system.
8. Preparation of first biennial Territorial Wetlands Report.
9. Preparation of a 5-year work plan.
10. Preparation of program financing strategy and plan.
11. Convene workshop (finalize report and work plan).

## **H. Water Quality Management Program**

The Water Quality Management (WQM) Program was created in 2000. Under the Water Quality Management & Planning (WQM&P) Grant (pursuant to CWA §604(b)), the V.I. DPNR-DEP is entrusted with the task of planning and implementing Water Quality Management Projects to ensure the protection of the marine waters of the USVI. Several duties that were formerly under the auspices of the Water Pollution Control (WPC) Program were placed under the WQM Program. In FY2009, WQM was merged with WPC.

WQM is tasked with the following sub-programs:

- COASTAL WATER QUALITY (AMBIENT) MONITORING PROGRAM
- TMDL DEVELOPMENT AND IMPLEMENTATION PROGRAM
- VIRGIN ISLANDS BEACH WATER QUALITY MONITORING PROGRAM
- WATER QUALITY MANAGEMENT AND PLANNING GRANT PROGRAM

### **III. SURFACE WATER MONITORING & ASSESSMENT**

#### **A. Surface Water Monitoring Program**

The Coastal Water Quality (Ambient) Monitoring Program is the primary mechanism for monitoring the Virgin Islands coastal water quality. The sampling locations on the fixed station network are monitored on a quarterly basis. WQM also manages the VI Beach Water Quality Monitoring (BEACH) Program which monitors up to 43 designated beaches throughout the Territory on a weekly basis. The Ambient and Beach Programs data are used to make water quality assessments on which this Integrated Report is based. All the monitoring locations are listed in Table III.A.1.

The Storage and Retrieval of Water-Related Data (StoRet) program is managed and updated by WQM staff. The monitoring data is uploaded to StoRet via the Water Quality Exchange Network website, using the Web Template.

The Assessment Database (ADB) was fully implemented once the Virgin Islands defined assessment units for more comprehensive water quality assessments. ADB is a valuable tool for storing assessment information (including all the assessment unit IDs and names, associated monitoring stations, category, class, designated use and the parameters it is impaired for, as well as additional metadata) and retrieving it for reporting purposes. DPNR traditionally populates an ADB Template in Microsoft Excel and submits it to USEPA for uploading into ADB.

At the very end of FY 2017 (September 25, 2017), the USEPA released the TMDL Tracking And Implementation System (ATTAINS) v1.0. Uploading the data into ATTAINS was not performed at the end of FY2017 as the program had just been released and operations in the USVI were disrupted by two Category 5 Hurricanes. However, inputting data into ATTAINS occurred at the end of FY2018 and the 303(d) draft list was public noticed via ATTAINS. Going forward, ATTAINS will replace the ADB.

DPNR-DEP work plans require quarterly monitoring of 138 near-shore monitoring sites, and 26 off-shore monitoring sites, for a total of 164 stations throughout the USVI. There are sixty-eight (68) stations around St. Croix, sixty-nine (69) stations around St. Thomas, and twenty-seven (27) around St. John. These sites are located offshore and are sampled by EPA contractors using a vessel. DPNR-DEP expanded the monitoring network to include deep-water offshore sites at the outer rim of the USVI's three-mile boundary.

#### **1. Ambient Monitoring**

During this reporting period Ambient Monitoring was conducted for 4 quarters throughout the Territory during FY2016, for 4 quarters during FY2017 in St. Croix Assessment Units (AU), and for 3 quarters in St. Thomas and St. John Assessment Units by an EPA-selected contractor. DPNR also collected ambient data using internal staff for 1 quarter in all Assessment Units during FY2016.

*i. Monitoring Sites*

**Table III.A.1. Virgin Islands Ambient Monitoring Sites.**

**St. Croix 68 Sites**

Stations	Class	Location	Stations	Class	Location
STC-1	B	Lagoon Recreational Beach	STC-25	B	Long Point Bay
STC-2	B	Ft. Louise Augusta Beach	STC-26	B	Good Hope Beach
STC-3	B	Buccaneer Hotel	STC-27	B	Frederiksted Public Pool
STC-4	B	Tamarind Reef Lagoon	STC-28	C	Frederiksted Pier
STC-5	B	Green Cay Marina	STC-29	B	Frederiksted Public Beach
STC-6	A	Buck Island Beach	STC-30	B	Sprat Hall Beach
STC-7	A	Buck Island Anchorage	STC-31	B	Davis Bay
STC-8	B	Reef Club Beach	STC-33	B	Salt River Marina
STC-9	B	St. Croix Yacht Club Beach	STC-33A	B	Salt River (Columbus Landing Beach)
STC-10	B	Cramer Park	STC-33B	B	Salt River Bay
STC-11B	B	Jack Bay, Forereef	STC-34	B	St. Croix By the Sea
STC-12	B	Divi (Turner Hole Beach)	STC-35	B	Long Reef Forereef West
STC-13A	B	Great Pond	STC-35A	B	LBJ (Pump Station) Outfall
STC-13B	B	Robin Bay	STC-36	B	Long Reef Forereef East
STC-14A	B	Manchenil Bay	STC-37	B	Christiansted Harbor Entrance West
STC-14B	B	Halfpenny Backreef	STC-38	B	Christiansted Harbor Entrance East
STC-15	B	Canegarden Bay (Gut)	STC-39	C	Altoona Lagoon Inlet
STC-15A	B	Canegarden Bay	STC-40	C	St. Croix Marine
STC-16	C	HOVENSA East Turning Basin, NW Corner	STC-41	C	Gallows Bay
STC-17	C	HOVENSA West Turning Basin, NE Corner	STC-42	C	Public Wharf
STC-18	C	Limetree Bay Container Port	STC-43	C	Water Gut Storm Drain
STC-19	C	Krause Lagoon Channel	STC-44	C	Protestant Cay Beach
STC-20	C	Alumina Plant Dock	STC-45	C	Christiansted Harbor
STC-21	B	Spoils Island (Ruth Island)	STC-46	C	V. I Water and Power Intake
STC-22A	B	Treatment Plant (POTW) Outfall	STC-47	B	Mill Harbor Condominiums

STC-23	B	Public Dump	STC-48	B	Long Reef Back Reef West
STC-24B	B	Rum Plant (VI Rum) Outfall	STC-49	B	Long Reef Back Reef East
STC-OFF1	B	NW-1	STC-OFF2	B	SE-1
STC-OFF3	B	SW-1	STC-OFF4	B	North-2
STC-OFF5	B	East-2	STC-OFF6	B	South-2
STC-OFF7	B	West-3	STC-OFF8	B	North-3
STC-OFF9	B	SW-3	STC-OFF10	B	SE-3
STC-OFF11	B	North-4	STC-OFF12	B	SW-4
STC-OFF13	B	SE-4			

**St. Thomas 69 Sites**

<b>Stations</b>	<b>Class</b>	<b>Location</b>	<b>Stations</b>	<b>Class</b>	<b>Location</b>
STT-1	C	Crown Bay, Near Outfall	STT-22B	B	Vessup Bay
STT-2	C	Crown Bay, Near Tamarind Outlet	STT-23	B	Great Bay
STT-3	C	Subbase	STT-24	B	Cowpet Bay
STT-4	B	Krum Bay	STT-25	B	Nazareth Bay
STT-5A	B	Lindbergh Bay, East	STT-26	B	Benner Bay
STT-5B	B	Lindbergh Bay, West	STT-27A	B	Mangrove Lagoon, Near Treatment Plant
STT-5C	B	WAPA Outfall	STT-27B	B	Mangrove Lagoon, Off Sanitary Landfill
STT-6A	B	Airport Runway	STT-27C	B	Mangrove Lagoon, Near Tropical Marine Fuel Dock
STT-6B	B	Airport College Cove	STT-27D	B	Mangrove Lagoon, Near LaVida Marina
STT-6C	B	S.W. Road, Near Red Point Outfall	STT-27E	B	Mangrove Lagoon, Near Compass Point
STT-7A	B	Brewers Bay	STT-28A	B	Bovoni Bay
STT-7B	B	Perseverance Bay	STT-28B	B	Bolongo Bay
STT-8	B	Fortuna Bay	STT-29A	B	Frenchman's Bay
STT-9	B	Botany Bay	STT-29B	B	Limetree
STT-10	B	Stumpy Bay	STT-30	B	Morning Star Bay
STT-11	B	Santa Maria Bay	STT-31A	B	Flamboyant Cove
STT-12	B	Caret Bay	STT-31B	B	Hassel Island, off Navy dock
STT-13	B	Dorothea	STT-31C	B	Hassel Island, Careening Cove
STT-14	B	Hull Bay	STT-32A	C	Long Bay, Near South Dolphin



STT-15	B	Magens Bay	STT-32B	C	Long Bay, N.E. Corner
STT-15A	B	Magens Bay, N.E.	STT-33A	C	Long Bay, Off Outfall
STT-15B	B	Magens Bay, NW..	STT-33B	C	Long Bay, Off Outfall
STT-16A	B	Mandahl Bay	STT-35	C	Groden Bay
STT-16B	B	Mandahl Bay Entrance	STT-36	C	STT Harbor, North of Coast Guard Dock
STT-17A	B	Spring Bay	STT-37	C	St. Thomas Harbor, Cay Bay
STT-17B	B	Sunsi Bay	STT-38	C	Haulover Cut
STT-18	B	Coki Point Bay	STT-39	B	Water Isle, East Gregorie Channel
STT-19	B	Water Bay	STT-40	B	Water Isle Hotel, Beach
STT-20	B	Smith Bay	STT-41	B	Water Island Flamingo Bay
STT-21A	B	St. John Bay	STT-42	B	Water Island Sprat Bay
STT-21B	B	Red Bay	STT-OFF6	B	STT-OFF6
STT-22A	B	Red Hook Bay	STT-OFF8	B	STT-OFF8
STT-OFF1	B	STT-OFF1	STT-OFF9	B	STT-OFF9
STT-OFF2	B	STT-OFF2	STT-OFF11	B	STT-OFF11
STT-OFF5	B	STT-OFF5	STT-OFF12	B	STT-OFF12

**St. John 27 Sites**

<b>Stations</b>	<b>Class</b>	<b>Location</b>	<b>Stations</b>	<b>Class</b>	<b>Location</b>
STJ-43A	B	Cruz Bay, North	STJ-48	B	Fish Bay
STJ-43B	B	Cruz Bay, South	STJ-49	B	Genti Bay
STJ-43C	B	Cruz Bay, North of Seaplane Ramp	STJ-50	B	Little Lameshur Bay
STJ-43D	B	Cruz Bay Creek North	STJ-51	B	Great Lameshur Bay
STJ-44A	B	Trunk Bay	STJ-52	B	Salt Pond Bay
STJ-44B	B	Hawksnest Bay	STJ-53	B	Coral Harbor
STJ-44C	B	Cinnamon Bay	STJ-54	B	Caneel Bay
STJ-44D	B	Francis Bay	STJ-55	B	Turner Bay
STJ-45	B	Great Cruz Bay	STJ-56	B	Johnson Bay
STJ-46	B	Chocolate Hole	STJ-57	B	Round Bay
STJ-47	B	Rendezvous Bay	STJ-58	B	Privateer Bay
STJ-OFF3	B	STJ-OFF3	STJ-OFF10	B	STJ-OFF10
STJ-OFF4	B	STJ-OFF4	STJ-OFF13	B	STJ-OFF13
STJ-OFF7	B	STJ-OFF7			

*ii. FY2016 and FY2017 Monitoring Frequency*

**Table III.A.2. Virgin Islands Ambient Monitoring Frequency.**

<b>Fiscal Year/Quarter</b>	<b>Monitoring Dates</b>
FY16 Qtr 1	STX: December 1 & 2 & 8, 2015 STT/STJ: December 1 & 7 & 9, 2015
FY16 Qtr 2	STX: January 25-27, 2016 STT/STJ: March 1 & 7 & 9, 2016 STX: March 22-23 & April 6, 2016 (DPNR Staff sampling) STT/STJ: April 12-14 & 18 & 21, 2016 (DPNR Staff sampling)
FY16 Qtr. 3	STX: June 13-14 & 20-21, 2016 STT/STJ: June 1 & 6 & 8, 2016
FY16 Qtr. 4	STX: September 26-28, 2016 STT/STJ: September 6 & October 11 & 20 & 25, 2016
FY17 Qtr 1	STX: December 13-15, 2016 STT/STJ: December 1 & 5 & 7, 2016
FY17 Qtr 2	STX: February 14-16 & 21, 2017 STT/STJ: February 23 & March 23 & 28, 2017
FY17 Qtr. 3	STX: May 8-11, 2017 STT/STJ: June 26-28 & 30, 2017
FY17 Qtr. 4	STX: July 18-19 & 24-25, 2017 STT/STJ: None

*iii. Monitoring Measurements*

At each station, field (in-situ) measurements included the following:

**Turbidity:** expressed in Nephelometric Turbidity Units (NTU's) measured 1 meter below the surface and 1 meter above the sea floor (or at the maximum depth of the instrument (approximately 30 m)) using a calibrated and EPA approved field instrument.

**Dissolved Oxygen:** expressed in mg/L saturation and measured 1 meter below the surface and 1 meter above the sea floor (or at the maximum depth of the instrument (approximately 30 m)) with an EPA approved and calibrated field instrument.

**pH:** expressed in Standard Units (SU) measured 1 meter below the surface and 1 meter above the sea floor (or at the maximum depth of the instrument (approximately 30 m)) with an EPA approved and calibrated field instrument.

**Temperature:** expressed in degrees Centigrade measured 1 meter below the surface and 1 meter above the sea floor (or at the maximum depth of the instrument (approximately 30 m)) with an EPA approved and calibrated field instrument.

**Salinity:** expressed in parts per thousand and measured 1 meter below the surface and 1 meter above the sea floor (or at the maximum depth of the instrument (approximately 30 m)).

**Secchi Depth:** expressed in meters by a Secchi depth measuring light transparency.

**Bacteria:** Water samples were collected by surface grab samples at each station on a quarterly basis and taken to a DPNR certified laboratory where they were analyzed for **Enterococci bacteria**. Results were expressed as number of colonies per 100 milliliters. Analysis was performed utilizing an EPA approved methodology. The geometric mean was also factored in before it was determined whether an assessment met the water quality standard.

**Total Suspended Solids:** Water samples were collected by surface grab samples at each station on a quarterly basis and taken to a DPNR certified laboratory where they were analyzed utilizing an EPA approved methodology.

**Total Phosphorous:** Water samples were collected by surface grab samples at each station and taken to a DPNR certified laboratory where they were analyzed utilizing an EPA approved methodology. DPNR-DEP is working to increase the sampling frequency for this parameter. A lack of resources has resulted in limited sampling. Currently, the local lab is being checked for quality assurance issues and the efficiency of the methods used is also being evaluated. Once these issues are assessed, it is anticipated that the monitoring frequency will be increased.

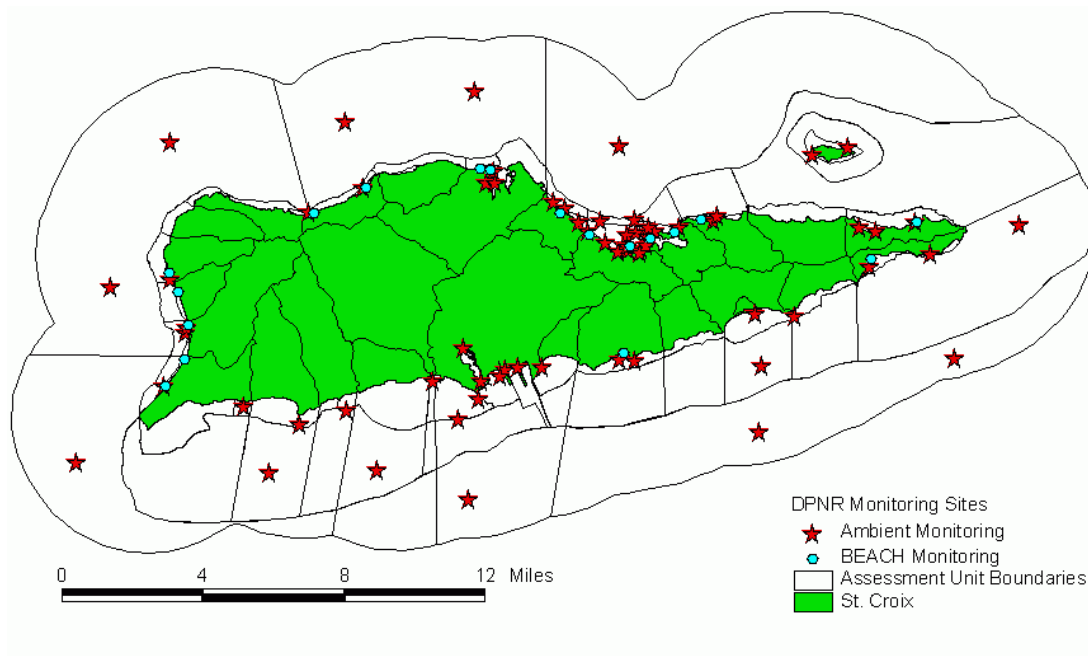
## **2. Beach Monitoring**

WQMP also monitors designated recreational beaches on a weekly basis through the Beach Water Quality Monitoring Program (with several exceptions explained below). The Beach Water Quality Monitoring Program collected weekly samples at up to 43 designated beaches throughout the Territory for FY2016 and FY 2017 which were analyzed for Enterococci Bacteria and Turbidity (analyzed at the lab).

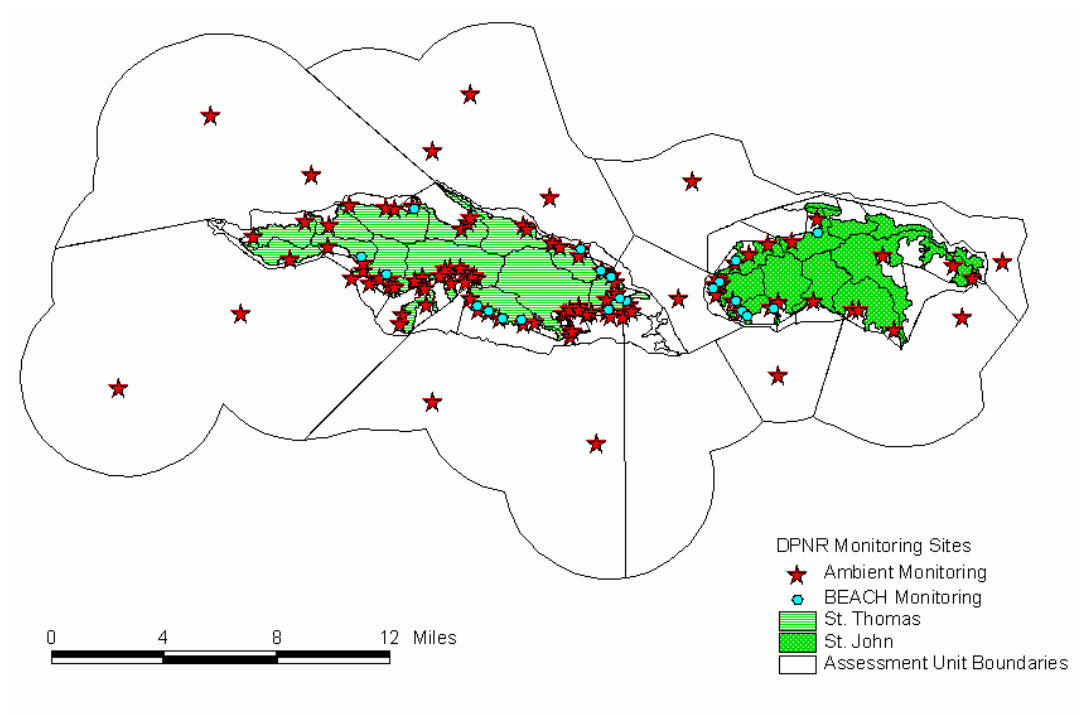
- Week ending 11/27/15 – No sampling done due to storm event.
- Week ending 12/4/15 – Sampling performed in STX and STJ only due to storm event in STT.
- Week ending 12/11/15 – Sampling performed in STX only due to storm event in STT & STJ
- Week ending 12/23/15 – Sampling performed in STX only due to early lab closure in the STT district.
- Week ending 12/31/15 – No sampling done due to lab closure in both districts.
- Week ending 1/15/16 – Sampling performed in STT, STJ and half of STX only due to heavy wave action at various beaches on STX.
- Week ending 4/1/16 – Sampling performed in STX only due to storm event.
- Week ending 4/15/16 – Sampling performed in STX only due to no staff in STT district due to BEACH Conference attendance.

- Week ending 7/29/16 – Sampling performed in STX only due to no staff available in STT district
- Week ending 8/5/16 – No sampling done due to STX lab closure and no staff available in STT district.
- Week ending 8/26/16 – Sampling performed in STT and STJ only due to storm event.
- Week ending 9/2/16 – Sampling performed in STX only due to no staff available in STT district.
- Week ending 9/9/16 – No sampling done due to lab refusal of service in both districts.
- Week ending 9/16/16 – Sampling performed in STT and STJ only due to lab refusal of service in both districts. STT district used alternate lab for sampling.
- Week ending 9/23/16 – Sampling performed in STT and STJ only due to lab refusal of service in both districts. STT district used alternate lab for sampling.
- Week ending 12/2/16 – Sampling performed in STX and STJ only due to storm event in STT.
- Week ending 12/9/16 – Sampling performed everywhere, but STX data not released until the following Monday (12/13/16) due to lab closure early.
- Week ending 12/16/16 – No sampling done due to heavy rains and high surf in both districts.
- Week ending 12/23/16 – Sampling performed in STX & STJ only due to sampler schedule conflicts in the STT district.
- Week ending 1/6/17 – Sampling performed everywhere, but some STT samples exceeded holding time and data not used.
- Week ending 1/13/17 – Sampling performed in STX & STJ only due to sampler schedule conflicts and lab supply issues in the STT district.
- Week ending 1/27/17 – Sampling performed everywhere except Oppenheimer Beach in STJ due to sampler error.
- Week ending 2/24/17 – Sampling performed in STX & STJ only due to sampler schedule conflicts in the STT district. Some STX beaches not sampled due to high wave activity creating unsafe sampling conditions.
- Week ending 3/10/17 – No sampling done due to heavy rains and high surf in both districts.
- Week ending 5/26/17 – Sampling performed everywhere except Johnson Bay Beach in STJ due to sampler error.
- Week ending 6/2/17 – Sampling performed everywhere except Johnson Bay Beach in STJ due to sampler error.
- Week ending 6/9/17 – Sampling performed everywhere except Grapetree Bay Beach in STX due to heavy presence of sargassum seaweed.
- Week ending 8/18/17 – Sampling performed everywhere except Bolongo Bay and Frenchman's Bay Beach in STT due to high wave activity creating unsafe sampling conditions.
- Week ending 9/8/17 – No sampling done due to pending landfall in Territory of Hurricane Irma
- Week ending 9/15/17 – No sampling done in STT & STJ due to landfall in Territory of Hurricane Irma.
- Week ending 9/22/17 – No sampling done due to landfall in Territory of Hurricane Maria and continued issues due to Hurricane Irma in STT & STJ.
- Week ending 9/29/17 – No sampling done due to continued issues due to Hurricane Irma and Hurricane Maria in Territory.

**Figure III.A.1 St. Croix Water Quality Monitoring Network**



**Figure III.A.2 St. Thomas/St. John Water Quality Monitoring Network**



### **3. Other Ambient Monitoring Activities**

#### *i. Toxics/biological monitoring*

No baseline or routine monitoring for toxics or biological effects is conducted in the Virgin Islands by the DEP. However, the University of the Virgin Islands (UVI) in conjunction with the NOAA Coral Reef Conservation Program, NOAA Protected Species, and the USVI Department of Planning and Natural Resources (CZM division), continue to conduct annual to semi-annual assessments of coral health, benthic community structure, fish community structure, and physical dynamics throughout Territorial waters. These studies augment the data repository for use in future bio-assessment and criteria development.

According to the Virgin Islands Multi-Year Monitoring Strategy (MYMS), DPNR-DEP will explore options for implementing a biological component of the Ambient Monitoring Program and feeding this into a database for eventual biocriteria development. Biological data pertaining to fish populations and coral reef health, diversity and other parameters may be collected during Ambient sampling events at selected sites to correlate with water quality data. This may include developing a partnership with NOAA, UVI or another agency with similar monitoring objectives.

Numeric water quality criteria for toxic pollutants (as found in the EPAs national recommended Clean Water Act section 304(a) water quality criteria) have been adopted into the Virgin Islands Water Quality Standards Rules and Regulations. However, no baseline or routine monitoring for toxics is currently scheduled to be incorporated into the DEP Ambient monitoring program in the immediate future, for eventual integration into the development of Virgin Islands specific water quality criteria for toxic pollutants.

#### *ii. Fish tissue, sediment, and shellfish monitoring:*

The Virgin Islands Water Pollution Control program does not monitor fish tissue, sediment or shellfish for toxicity. A background analysis of ambient water quality has not yet been performed to support the adoption of biological criteria for toxic chemicals (1996 VI 305(b)).

#### *iii. Quality assurance/quality control program*

The US Virgin Islands DPNR-DEP's Quality Assurance (QA) Program is committed to assuring and improving the quality of all environmental measurements performed by and for the Department. The goal of the QA program is for the acquisition of reliable and defensible environmental data. It is the policy of DPNR that adequate QA activities are conducted within the agency to ensure that all environmental data generated and processed are scientifically valid, of known precision and accuracy, of acceptable completeness, representativeness and comparability and, where appropriate, legally defensible. During Fiscal Years 2016 and 2017 QA activities such as program technical audits, file audits, revision of the Quality Assurance Management Plan, Management System Reviews, review of program and contractual Quality Assurance Project Plans, review of all program Standard Operating

Procedures, and Laboratory Certifications were performed. DPNR has a full-time QA/QC Officer who also acts as the Laboratory Certification Officer for the Department.

*iv. Volunteer monitoring*

DPNR had no monitoring volunteers during the reporting period. Volunteer monitoring, however, is being planned for implementation in future water quality monitoring program activities.

*v. Program evaluation*

- The Ambient water quality monitoring program continues to be conducted throughout a fixed network of monitoring stations in embayments, nearshore and offshore Territorial waters by EPA contractors. It is the aim of the DEP to regain sampling/monitoring privileges in FY18 to FY19 and to reevaluate the network of monitoring stations to determine where improvements may be made;
- The BEACH monitoring program continues to be conducted throughout a fixed network of 43 designated beaches. It is the aim of the DEP to reevaluate designated beaches in FY18 to FY19 in order to ascertain if the tiered system needs modification, or beaches should be added or removed. This would be done through thorough detailed beach evaluations, evaluating number of beachgoers, frequency of exceedances, general beach activities, and location over the course of 6-12 months;
- No baseline or routine monitoring for toxics is conducted in the Virgin Islands by the DEP. A background analysis of ambient water quality is needed to support the adoption of specific biological criteria for toxic pollutants (1998 305(b) Report). As part of the 2015 US Virgin Islands Water Quality Standards revision, the national recommended criteria were adopted;
- DPNR-DEP intends to explore options for implementing a biological component of the Ambient Monitoring Program and using this data for eventual biocriteria development;
- New equipment and staff training is needed to assess water quality for the development of toxic and biological criteria (1998 305(b) Report);
- Revisions to the Water Quality Standards and criteria are needed to include numeric values instead of narrative description of desired water quality for biological condition and toxic pollutants.

#### **4. Storage and Retrieval Program (STORET)**

During this reporting cycle, DPNR-DEP used the WQX\_Web Template to catalog its water quality monitoring data. After the template was populated, DPNR-DEP uploaded it to the Water Quality Exchange from which it can be queried using StoRet. All data used to make assessments in this Integrated Report has been uploaded into WQX Web.

##### **FY2016**

Data collected during Basic Water Quality Monitoring (BWQM) (the “Ambient” program) was entered into the WQX Web Template for uploading into WQX Web by the USEPA Contractor. The weekly Beach Water Quality Monitoring data were entered into the WQX Web Template for upload to the WQX Web by DEP personnel.

##### **FY2017**

Data collected during BWQM was entered into the WQX Web Template for uploading into WQX Web by the USEPA Contractor. The weekly Beach Water Quality Monitoring data were entered into the WQX Web Template for upload to the WQX Web by DEP personnel.

#### **B. Assessment Methodology**

##### **Purpose:**

The Clean Water Act requires each state to conduct water quality surveys to determine if its waters are healthy and have sufficient quality to meet their designated uses and attain water quality standards. A report on this water quality assessment is submitted every two years to US Environmental Protection Agency – Region 2. The U.S. Environmental Protection Agency (USEPA) encourages states to adopt the Integrated Reporting format which blends elements of the 305(b) Water Quality Assessment Report and the 303(d) Impaired Waterbody List. The United States Virgin Islands Department of Planning and Natural Resources (DPNR-DEP) uses this format to more accurately and completely assess USVI’s waterbodies.

States are required to submit, for USEPA and public review, the methods used to collect, analyze, and interpret data to determine compliance with applicable water quality standards and assess support of the applicable designated uses. This Method document serves that function by providing an objective and scientifically sound assessment methodology.

##### **Complete assessments include:**

##### ***Identification of waterbody type.***

All waters of the U.S. Virgin Islands shall meet generally accepted aesthetic qualifications and shall be capable of supporting diversified aquatic life. The waters within the jurisdiction of the United States Virgin Islands include: all harbors, bays, streams, lakes, ponds, impounding reservoirs, marshes, water-courses, water-ways, wells, springs, irrigation systems, drainage systems and all other



bodies or accumulations of water, surface and underground, natural or artificial, public or private, situated wholly or partly within or bordering upon the United States Virgin Islands, including the territorial seas, contiguous zones, and oceans. Assessments of these “waters” shall be included in the U.S. Virgin Islands 2018 Integrated Report, with emphasis given to the waterbodies inland, near-shore and off-shore from the three major islands making up the U.S. Virgin Islands: St Croix, St Thomas and St John. All available groundwater data will be reviewed for possible inclusion in the report and the Division of Environmental Protection’s Groundwater Program will provide groundwater discussion in the 2018 Integrated Report.

### ***Identification of waterbody classification and designated use.***

According to the 2015 U.S. Virgin Islands Water Quality Standards (WQS), the waters of the Virgin Islands exist in one of four classes: I, A, B and C. The geographical extent of the four waterbody classes, and the applicable water quality standards are found at the following website:

<http://dpr.vi.gov/environmental-protection/water-quality-management/>

Or, via navigation from <https://dpr.vi.gov>

### ***Inventory of physical, chemical and microbiological data***

The Division of Environmental Protection’s Coastal Water Quality (Ambient) Monitoring Program is managed by the Water Quality Management Program (WQMP). Through the Coastal Water Quality Monitoring Program, ambient water quality is monitored on a quarterly basis, WQMP also monitors designated recreational beaches on a weekly basis through the Beach Water Quality Monitoring Program. Through an In-Kind Assistance Agreement, USEPA contractor was responsible for conducting quarterly Ambient Monitoring for FY16-17, although one quarter of additional data was collected by DPNR staff in FY16.

The inventory of physical, chemical and microbiological data used to develop the 2018 Integrated Report and make water quality assessments are StoRet data extracts from fiscal years 2016-2017 (October 1, 2015 to September 30, 2017) from the Ambient and Beach Water Quality Monitoring Programs. The parameters used to perform the assessments are those parameters which were analyzed by the Ocean Systems Laboratory, University of the Virgin Islands’ Environmental Analysis Laboratory, Pace Analytical Laboratory and USEPA Region II Laboratory. These parameters include: Enterococci, Turbidity, pH, Dissolved Oxygen and Total Phosphorus.

### ***Habitat assessment data inventory***

The US Virgin Islands Division of Fish and Wildlife has been identified as a possible data source for habitat assessments. However, there is no habitat assessment data available at this time. If data is available in the future it will be included in future water quality assessment reports.

### *Visual Data Sources*

The Department of Planning and Natural Resources, Division of Environmental Protection keeps a log of all incidents of oil spills, fish kills and other events that had a negative impact on the water quality in the US Virgin Islands. It was determined that there were no visual data sources to be reported on or included for this reporting cycle.

### *Identify exceedances of water quality standards*

The U.S. Virgin Islands water quality standards set limits for various criteria. All readily available data that meet quality assurance/quality control requirements will be compared to the limits set by the USVI water quality standards to determine which waterbodies exceed these limits.

During this reporting cycle the parameters listed below were assessed in the following manner:

Parameter	Source Data Type	Assessment Method
Enterococci	Ambient	The 30-day geometric mean for enterococci shall not exceed 30 CFU/100 mL and no more than 10 percent of the samples collected in the same 30 days shall exceed 110 CFU/100 mL.
	Beach	
Turbidity	Ambient	A maximum nephelometric turbidity unit reading of three (3) shall be permissible, and secchi disk reading of minimum of 1 meter.
	Beach	
	Ambient	<b>*For areas where coral reef ecosystems are located</b> , a maximum nephelometric turbidity unit reading of one (1) shall be permissible, and secchi disk reading of minimum of 1 meter.
	Beach	
Total Phosphorus	Ambient	Shall not exceed 50 µg/l
pH	Ambient	Class A, B: Range shall not be outside 7.0 to 8.3 standard units Class C: Range shall not be outside 6.7 to 8.5 standard units
Dissolved Oxygen	Ambient	Class A, B: Shall be no less than 5.5 mg/L Class C: Shall be no less than 5.0 mg/L
Temperature	Ambient	Shall not exceed 32 degrees Celsius at any time, nor as a result of waste discharge to be greater than 1.0°C above natural conditions
		<b>*For areas where coral reef ecosystems are located</b> , shall not exceed 25-29°C at any time, nor as a result of waste discharge to be greater than 1.0°C above natural.

\*Areas that contain coral reef ecosystems are determined based on Benthic Habitat Atlas of Puerto Rico and the U.S. Virgin Islands (2002)

### ***Designated Use Attainment***

The VI Water Quality Standards identify specific designated uses for the waters of the U.S. Virgin Islands according to their waterbody classifications. Designated uses include:

- maintenance and propagation of desirable species of aquatic life (including threatened, endangered species listed pursuant to section 4 of the federal *Endangered Species Act* and threatened, endangered and indigenous species listed pursuant Title 12, Chapter 2 of the Virgin Islands Code)
- primary contact recreation (swimming, water skiing, etc.).

The Department uses both numeric and narrative criteria to protect designated uses. Numeric criteria are estimates of constituent concentrations that are protective of the designated uses. Narrative criteria are non-numeric descriptions of conditions to be attained/maintained or avoided.

### **Parameters for Designated Use Assessments**

Evaluation of this reporting cycle's data has determined that the following parameters be used to perform assessments:

<b>Designated Use</b>	<b>Minimum Parameters Used For Assessments</b>	<b>Source Data Type</b>
<ul style="list-style-type: none"><li>• Maintenance and propagation of desirable species of aquatic life</li><li>• Primary Contact Recreation</li></ul>	Enterococci	Ambient
		Beach
	Turbidity (Laboratory-generated)	Beach
	Total Phosphorus	Ambient
	Dissolved Oxygen	Ambient
	Turbidity (Multi-parameter Sonde)	Ambient
	pH	Ambient
	Temperature	Ambient

### ***Data gaps and error control***

It is understood that the US Virgin Islands has a number of data gaps. These gaps are not limited to existing data sets, but it can also refer to the lack of certain types of data; additionally, disclaimer language will be added to ensure that everyone who reviews the document is clear about the data used to make assessments.

The table below lists potential data gaps which DPNR intends to work on developing a data document in collaboration with EPA Region 2 in the near future. Any data gaps that are identified will be included in the multi-year monitoring strategy for resolution.

Future Assessment Methodologies to be Included	Timeframe for inclusion
Toxicity and toxicant data	See Section 1.4 & Appendix A of the USVI MYMS for details
Wetland assessment data	See Section 1.4, 4.3 & Appendix A of the USVI MYMS for details
Intermittent streams data	See Appendix A of the USVI MYMS for details
“Natural” levels relative to the DO and temperature standards	See Appendix A of the USVI MYMS for details
Narrative criteria, as listed in Section 186-1(c) of the VI WQS Regulations	See Appendix A of the USVI MYMS for details
Radioactivity data	See Appendix A of the USVI MYMS for details

The US Virgin Islands will make every effort to control errors that may have been reported in data. Data determined to be erroneous or flawed based on the program’s data quality objectives established in the Coastal Water Quality Monitoring (Ambient) and Beach Water Quality Monitoring Programs Quality Assurance Project Plans will be discarded. Evaluation of this reporting cycle has determined that the following parameters be used to perform assessments:

Minimum Parameters Used For Assessments	Source Data Type
Enterococci	Ambient
	Beach
Turbidity (Laboratory-generated)	Beach
Total Phosphorus	Ambient
Dissolved Oxygen	Ambient
Turbidity (Multi-parameter Sonde)	Ambient
pH	Ambient
Temperature	Ambient

### ***Natural Disasters***

Hurricane season in the U.S. Virgin Islands lasts from June through November each year. There was no sampling during this reporting cycle related to natural disasters. However, the following storm and associated sampling events occurred:

#### **FY16**

No episodic monitoring conducted

#### **FY17**

*Hurricane Irma:*

September 6, 2017 - Conducted Beach/Coastal Assessments

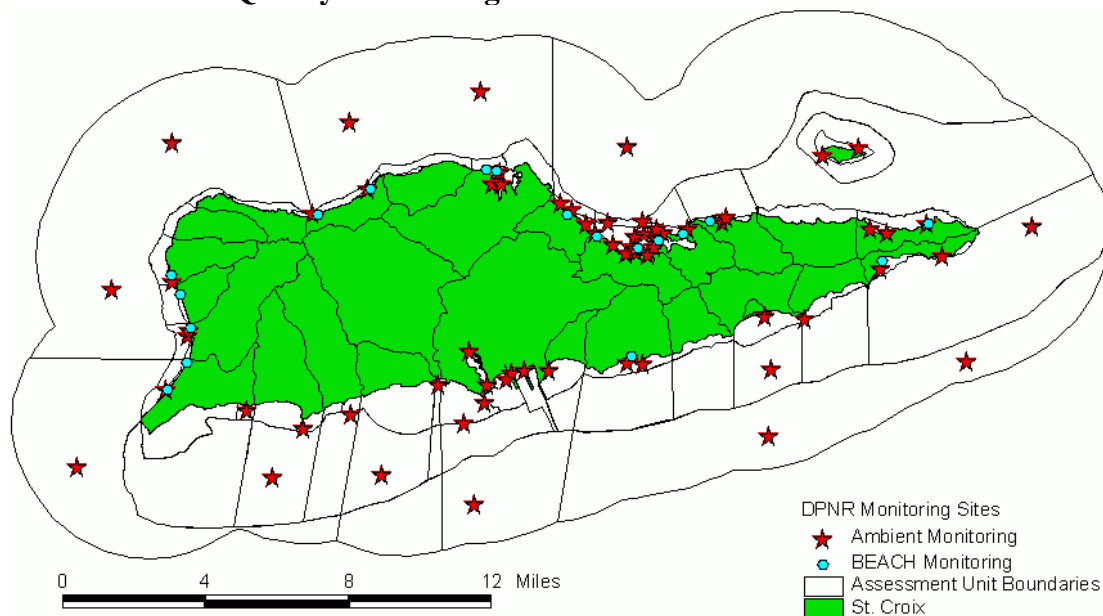
*Hurricane Maria:*

September 19, 2017- Conducted Beach/Coastal Assessments (no conditional sampling done until FY18)

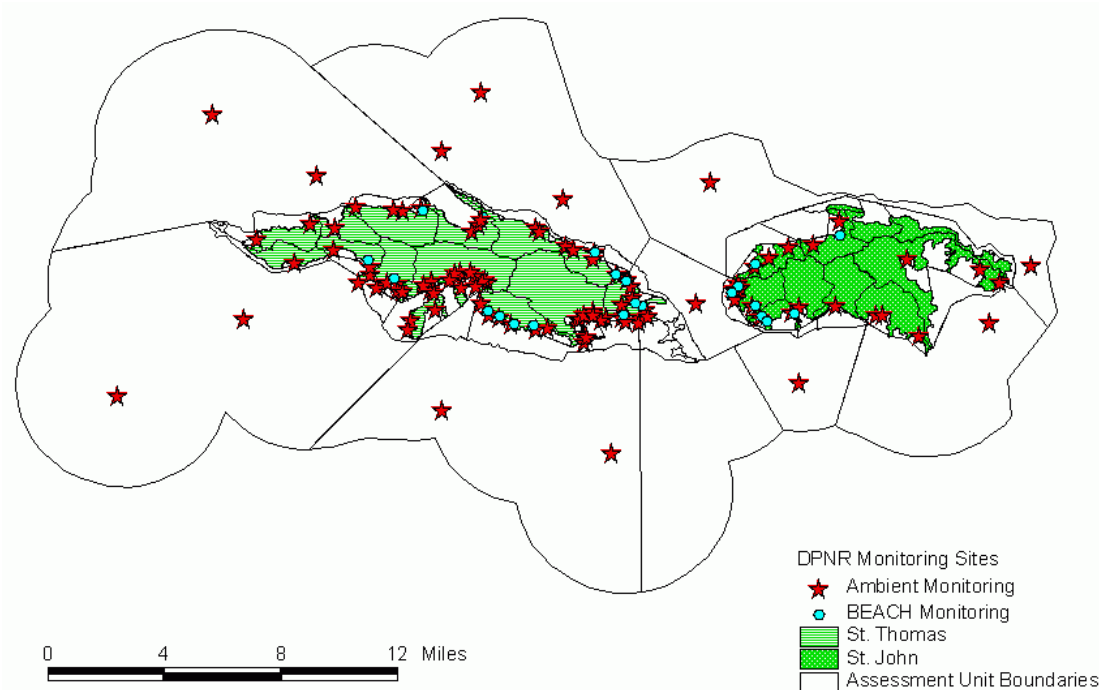
***Evaluation of Internal Data***

Ambient (Coastal Water Quality) Data was collected for 4 quarters throughout the Territory during FY2016. Ambient Data was collected for 4 quarters during FY2017 in St. Croix Assessment Units (AU), and for 3 quarters in St. Thomas and St. John Assessment Units by an EPA-selected contractor. DPNR also collected ambient data using internal staff for 1 quarter in all Assessment Units during FY2016. DPNR will use all these datasets, giving a total evaluation of eight (8) sets of monitoring data for the St. Thomas and St. John AUs, and nine (9) sets of monitoring data for the St. Croix AUs. The Beach Water Quality Monitoring Program collected weekly samples at 43 designated beaches throughout the Territory which were analyzed for Enterococci Bacteria and Turbidity (analyzed at the lab). Data received during the 2018 Integrated Report Data Solicitation Process announced on November 2, 2015; and Analytical Data for bacteria grab samples, Total Phosphorus and turbidity (analyzed at the lab), as well as, dissolved oxygen, turbidity, pH and temperature (analyzed by multi-parameter) to make assessments for the 2018 Integrated Report. The data used for assessments were uploaded to the StoRet Database via the Water Quality Exchange. The figures below display DPNR's monitoring locations for its Ambient and Beach Programs:

**St. Croix Water Quality Monitoring Network**



## St. Thomas/St. John Water Quality Monitoring Network



DPNR evaluates all internal monitoring data to determine if the Data Quality Objectives outlined in the USVI Ambient Water Quality Monitoring Program Quality Assurance Project Plan are met i.e. compliance with the Relative Percent Difference (RPD) of 30 or less. Once the data is determined to meet the required objectives, for example the RPD, the data is used to conduct the assessments for the reporting cycle. The elements evaluated are as follows:

### Precision

The precision of data are determined by particular actions of the analytical laboratory and field staff, which are outlined in the relative SOPs and QAPPs. WQM staff ensures timely and efficient calibration and maintenance of the multi-parameter sonde, in accordance with DPNR-DEP's YSI 6600 Sonde Operation and Maintenance - SOP. The WQM staff also assures that water samples and related field data are collected at the right locations. Once at the prescribed location staff makes every effort to record field data accurately and entered into the databases for uploading to EPA StoRet, in accordance with the WQX\_Web Data Entry SOP. Staff collect field samples in a manner that would limit or prevent sample contamination and deliver samples to laboratory within sufficient time such that the samples can be analyzed within the correct holding time. Staff also fill out required field and lab submittal paperwork, which is also in accordance with the Data Collection and Sample Handling – Ambient Water Quality Monitoring SOP. After data is analyzed and results are received from the laboratory all documents are stored in accordance with Filing of Ambient Field Data Forms and Associated Paperwork SOP.

The precision of data is a measure of the reproducibility of the measurement when an analysis is repeated. The precision of selected chemical analyses will be examined by using standard solutions and comparison of duplicate analysis. Relative percent difference (RPD) will be calculated for field duplicate analysis to assess precision of field collection procedure. Laboratory precision will be determined by calculating RPD of results of “unknown” analysis and laboratory duplicate analysis. The acceptable RPD is 30 or less. The following is the formula used for calculation of RPD:

$$\text{RPD} = \{(C1 - C2) / [(C1 + C2) / 2]\} \times 100$$

**RPD= Relative Percent Difference**

**C1= Larger of two observed values**

**C2= Smaller of two observe values**

### **Representativeness**

The representativeness of the data is mainly dependent on the sampling locations and the sampling procedures adequately representing the true condition of the sample site. Sampling station siting and use of only approved/documented analytical methods will determine that the measurement data represent the conditions at the site, to the extent possible. Sampling schedules will be designed with respect to frequency, locations and methodology in order to maximize representativeness, where possible and applicable.

Laboratory representativeness will be achieved by following analytical procedure and standard operating procedures, meeting holding times, and assessment and comparison of field duplicate samples.

### **Comparability**

The comparability of data produced by and for DPNR is predetermined by the commitment of its staff and analytical laboratories to use standardized methods, where possible, including EPA approved analytical methods, or documented modifications thereof which provide equal or better results. These methods have specified units in which the results are to be reported.

### **Completeness**

The completeness of data is a relationship of how much of the data is available for use compared to the total potential data before any conclusion is reached. Ideally, 100% of the data should be available. However, the possibility of data becoming unavailable due to laboratory error, insufficient sample volume, or samples broken in shipping must be expected. Also, unexpected situations may arise where field conditions do not allow for 100% data completeness. Failure to achieve 100% data completeness usually will result from the field crew’s inability to sample at stations because of logistical barriers, such as insufficient depth, or adverse weather conditions. In the limited number of instances where these may be encountered, efforts will be made to relocate the station in an adjacent area or re-sample the station. In addition, established protocols for tracking samples during shipment and laboratory processing must be followed to minimize data loss following successful sample

collection. The Department has various completeness goals: 100% for data collection and data usage, which directly correlates to a 100% goal for data used to make assessments. However, if less than 8 data points are collected for a particular assessment unit, then the Department will not be able to delist those assessment units eligible for delisting.

It is the responsibility of the program manager to verify that the data are representative, and completeness is achieved while the analytical data's precision, accuracy, and comparability are mainly the responsibility of the laboratory supervisor.

### ***Data From Other Sources***

DPNR will consider data received during its Data Solicitation period for the submission of the draft 303(d) Total Maximum Daily Load List. All data received will be reviewed for credibility and if determined to be of high quality and of great significance it may be added as an appendix. Otherwise, the data received after solicitation process will be considered during the next cycle. Other data sources refer to any data that was collected outside of the U.S. Virgin Islands Department of Planning & Natural Resources.

The following agencies were contacted to request data during the Data Solicitation Period. The agencies were asked to submit all relative monitoring data for the monitoring period with the associated Quality Assurance Project Plan:

Contact	Organization	Data Submitted
Kofi Boateng	UVI-CES	No data submitted.
David Worthington	National Park Service	No data submitted.
Zandy Hillis-Starr	National Park Service	No data submitted.
Catherine Toline	National Park Service	No data submitted.
Dr. Bernard Castillo	UVI-College of Science and Math	No data submitted.
Pedro Diaz	USGS/GSA Center	No data submitted.
Caroline Rogers	USGS	No data submitted.
Eric Hawk	National Marine Fisheries Service	No data submitted.
Nancy Graff	The Nature Conservancy	No data submitted.
Lisa K. Terry	The Nature Conservancy	No data submitted.
Dr. Paul Jobsis	UVI-Center for Marine & Env. Studies	No data submitted.
Marlon Hibbert	NOAA Coral Reef Cons. Program, OCRM	No data submitted.
Cheryl Woodley	NOAA	Data submitted, but unusable as it was interstitial water samples.
Anabel Padilla	NOAA	No data submitted.
Felix Lopez	USF&W	No data submitted.
Edwin Muniz	PR US F&W Service	No data submitted.
Rudy O'Reilly	USDA/NRCS	No data submitted.
Darvene Adams	USEPA Region 2	No data submitted.
Dr. Tyler Smith	UVI-Center for Marine & Env. Studies	No data submitted.



Contact	Organization	Data Submitted
Dana Wusinich-Mendez	NOAA	No data submitted.
Dr. Lisamarie Carrubba	NOAA Fisheries	No data submitted.

Once received the QAPP and data would be evaluated to determine if DPNR's Data Quality Objectives were met. If the data is determined to be acceptable then the data would be used in the reporting cycle's assessments. A rationale for any decision to not use any existing and readily available data and information would also be included in the Integrated Report.

DPNR intends to develop a Standard Operating Procedure for the evaluation of secondary data which will clearly articulate acceptance criteria. That criteria once developed will be incorporated into the relative version of the Assessment Methodology.

DPNR received only one set of data from outside agencies; however, that data could not be used as it was from interstitial water samples, and DPNR does not currently have classifications for, water quality criteria for, or assess interstitial waters.

### **Monitored Waters**

The coastal waters of the Virgin Islands are evaluated for the following uses: Primary Contact Recreation and Aquatic Life Use Support. All existing and readily available data and information will be assembled and used in the assessment.

Island	# of Assessment Units (AUs)	AUs Monitored	# of AUs each Class of Water falls under			% of Total
			Class A	Class B	Class C	
<b>St. Croix</b>	<b>84</b>	<b>37</b>	<b>1</b>	<b>30</b>	<b>6</b>	<b>44%</b>
<b>St. Thomas</b>	<b>59</b>	<b>42</b>	<b>0</b>	<b>39</b>	<b>3</b>	<b>71%</b>
<b>St. John</b>	<b>33</b>	<b>17</b>	<b>0</b>	<b>17</b>	<b>0</b>	<b>52%</b>

\* AUs not monitored were either missed during monitoring events or currently do not have monitoring locations within them

### **Use Support Determination**

Waterbody delineations used for determining use support are derived from global information system (GIS) coverages. The Division of Environmental Protection is currently considering contracting professional services to develop a revised standard waterbody delineation based on a number of prevailing factors.

Presently, use support will be determined using the most current version of the US Virgin Islands Water Quality Standards which was promulgated on August 28, 2015. The current use determinations are as follows:

### **§ 186-2. Class A**

- (a) **Designated uses:** Maintenance and propagation of desirable species of aquatic life (including threatened, endangered species listed pursuant to section 4 of the Federal Endangered Species Act and threatened, endangered and indigenous species listed pursuant Title 12, Chapter 2 of the Virgin Islands Code) and primary contact recreation. Preservation of the unique characteristics of the waters designated as Outstanding Natural Resource Waters (e.g., Natural Barrier Reef at Buck Island, St. Croix and the Under Water Trail at Trunk Bay, St. John), waters of exceptional recreational, environmental, or ecological significance. The quality of these waters cannot be altered except towards natural conditions. No new or increased dischargers shall be permitted.

### **§ 186-3. Class B**

- (a) **Designated uses:** Maintenance and propagation of desirable species of aquatic life (including threatened, endangered species listed pursuant to section 4 of the Federal Endangered Species Act and threatened, endangered and indigenous species listed pursuant Title 12, Chapter 2 of the Virgin Islands Code) and primary contact recreation (swimming, water skiing, etc.). This Class allows minimal changes in structure of the biotic community and minimal changes in ecosystem function. Virtually all native taxa are maintained with some changes in biomass and/or abundance; ecosystem functions are fully maintained within the range of natural variability.

### **§ 186-4. Class C**

- (a) **Designated uses:** Maintenance and propagation of desirable species of aquatic life (including threatened and endangered species listed pursuant to section 4 of the Federal Endangered Species Act and threatened, endangered and indigenous species listed pursuant Title 12, Chapter 2 of the Virgin Islands Code), primary contact recreation (swimming, water skiing, etc.), industrial water supplies, and shipping, and navigation. This Class allows for evident changes in structure of the biotic community and minimal changes in ecosystem function. Evident changes in structure due to loss of some rare native taxa; shifts in relative abundance of taxa (community structure) are allowed but sensitive-ubiquitous taxa remain common and abundant; ecosystem functions are fully maintained through redundant attributes of the system.

## **Ground Water Assessment**

### **Groundwater Monitoring Program**

WQM is not tasked with monitoring the groundwaters of the USVI. WQM has been informed by DPNR-DEP's Groundwater Program that the only groundwaters that are monitored throughout the Territory are those that are potable water sources. The monitoring is required through DPNR-DEP's Public Water Systems Supervision Program.

## Surface Water Assessment

As part of the assessment process, each assessment is rated as being supporting, partially supporting, not supporting or not applicable (not applicable is usually the result of a data gap). Under the integrated reporting format, partially supporting and not supporting **are both considered impaired and will be listed under category 5 provided water quality standards are exceeded**. The USVI uses partially supporting only as a measure of impairment severity. Severity is important in helping the USVI design a schedule for total maximum daily loads. While partially supporting waters are listed as impaired, not supporting waters are listed as impaired and threatened.

In order to assess an assessment unit, data must be available for at least one applicable parameter associated with the attainment of the given designated use. Impairment of any single indicator will result in the waterbody being listed as impaired (for that parameter), even if the other indicators do not exceed the standards.

Consideration will be taken in cases where a parameter falls within the degree of error of monitoring equipment; the data will be reviewed and if the value is within the instrumentation's degree of error it will be accepted. If after the instrument's degree of error is considered the parameter is still found to be an exceedance it will be considered as such.

1. Primary Contact Recreation

## Microbiological Assessment

The use support is based on a review of quarterly ambient and weekly beach data for both the Statistical Threshold Value (STV) as well as Geometric Mean (GM) of enterococci bacteria, beach closing data and reported oil spills. Allowable limits are the same for all classes of waters: a geometric mean of 30 CFU per 100 mL, or a STV exceedance of 110 CFU/100 mL in more than 10 percent of the samples collected in the same 30 days. The percent of total violations is evaluated as follows:

1. Fully Supporting: None of the Samples exceed a geometric mean of 30 CFU/100 ml in all class waters and no exceedance of 110 CFU/100 mL in more than 10 percent of the samples collected in the same 30 days.
2. Not supporting: Any of the Samples exceed a geometric mean of 30 CFU/100 ml in any class waters and exceedance of 110 CFU/100 mL in more than 10 percent of the samples collected in the same 30 days.

## Beach Closing Assessment

In addition to pathogens, beach-closing data will be used to determine primary contact recreation use support. The matrix of allowable violations is as follows:

1. Supporting: No bathing area closures or restrictions in effect during reporting period.
2. Not Supporting: On average, one bathing area closure per year of greater than 1 week's duration, or more than one bathing area closure per year.

\* Closure as stated above refers to the VI Department of Health or VI Waste Management Authority closing beaches due to immediate health risks or threats. While, restrictions refer to advisories which may recommend that the public avoid certain areas/beaches.

The Department of Planning and Natural Resources only issues administrative advisories and cannot restrict beach access. Beach closures would only be enforced by government enforcement officials for very serious threats to human health; these closures can only be implemented by the VI Department of Health or the VI Waste Management Authority. These serious threats are usually related to bypasses or overflows of the municipal sewer system, which may result in raw sewage flowing onto beaches and into the nearshore/bathing areas.

DEP has implemented a Beaches Environmental Assessment and Coastal Health (BEACH) Monitoring Program that takes samples for Enterococci at select sites on a weekly basis. This data will be used in conjunction with data collected from the Ambient Monitoring Program. Beaches which are listed as not suitable for fishing or swimming in the weekly Beach Program have had samples collected which exceed the standard within that monitoring week. Those beaches that are re-sampled according to the BEACH QAPP and exceed the standard twice within that monitoring week shall be listed as well.

### **Toxicant Assessment (Human Health and Aquatic Life)/ Toxicity Assessment**

The applicable numeric water quality standards for toxic pollutants to protect the designated uses of waters of the U.S. Virgin Islands shall be the Environmental Protection Agency's (EPA) national recommended Clean Water Act section 304(a) water quality criteria, EPA's Office of Water, Office of Science and Technology (4304T), 2006. Those parameters can be found at the following website: <http://www.epa.gov/waterscience/criteria/wqctable/index.html>

The conditions for use support are as follows:

1. Fully Supporting: No toxicants or toxicity noted in either acute or chronic tests compared to controls or reference conditions.
2. Partially Supporting: No toxicants or toxicity noted in acute tests but may be present in chronic tests in either slight amounts and/or infrequently within an annual cycle.
3. Not Supporting: Toxicants or toxicity noted in many tests and occurs frequently.

Currently DPNR-DEP does not collect any toxicity data, and none was received during the data solicitation period. Therefore, no assessments were made based on toxicants or toxicity during this

reporting period. DPNR-DEP will continue to review its criteria for these assessments and will work to improve upon the current criteria to ensure they are relevant to the assessment of human health. Additionally, as DPNR-DEP works to expand the VI Water Quality Standards this section will continue to be amended.

### **Other Parameters**

Throughout the course of collecting data for this report, data that does not fit within the auspices of the other assessment categories of Primary Contact Recreation Use Support (e.g. aesthetics, pH, turbidity, algae, odor, etc.) will be considered under Other Parameters. The following guidelines apply where appropriate:

1. Fully Supporting: For any one pollutant or stressor, criteria exceeded in none of the measurements.
2. Not Supporting: For any one pollutant, criteria exceeded in any of measurements.

DPNR-DEP intends to continue to work towards in developing expanded criteria for making assessments within this category. There were no assessments made for this category during this reporting cycle.

### **Habitat Assessment**

Determination of Aquatic Life Use Support will consider habitat assessment data (based on availability) in relation to propagation of desired species of marine life and the biological integrity of the benthic communities living within waters. These communities shall be assessed by comparison to reference conditions(s) with similar abiotic and biotic environmental settings that represent the optimal or least disturbed condition for that system. Such reference conditions shall be those observed to support the greatest community diversity, and abundance of aquatic life as is expected to be or has been historically found in natural settings essentially undisturbed or minimally disturbed by human impacts, development, or discharges.

Habitat assessment data is considered as follows:

1. Fully Supporting: Reliable data indicate natural channel morphology, substrate composition, bank/riparian structure, and flow regime of region. Riparian vegetation of natural types and of relatively full standing crop biomass (i.e., minimal grazing or disruptive pressure).
2. Partially Supporting: Modification of habitat slight to moderate usually due to road crossings, limited riparian zones because of encroaching land use patterns, and some watershed erosion. Channel modification slight to moderate.

3. Not Supporting: Moderate to severe habitat alteration by channelization and dredging activities, removal of riparian vegetation, bank failure, heavy watershed erosion or alteration of flow regime and inclusion of exotic or aquatic nuisance species

DPNR-DEP received no habitat assessment data for the 2016-2017 reporting cycle. However, DPNR has established a work group to begin to discuss correlations between water quality and various indicator species. As DPNR-DEP continues its ongoing efforts to improve the VI Water Quality Standards, criteria will be set for reference conditions/sites which will assist in completing habitat assessments for various waterbody classes.

### Conventional Assessment

Conventional parameters are evaluated using the number of exceedances of water quality standards. A waterbody is determined to be impaired if there is an exceedance of a specific parameter two (2) or more times within the chosen dataset.

The conventional parameters are:

- Dissolved Oxygen (not less than 5.5 mg/l from other than natural conditions in Class A & B, not less than 5.0 mg/l from other than natural conditions in Class C) \*;
- Temperature (not to exceed 32°C at any time, nor as a result of waste discharge to be greater than 1.0°C above natural conditions; **in areas where coral reef ecosystems are located\*\***, not to exceed 25-29°C at any time, nor as a result of waste discharge to be greater than 1.0°C above natural conditions) \*;
- Turbidity (All Classes: shall not exceed 3 NTU and secchi disk reading of minimum of 1 meter; **In areas where coral reef ecosystems are located\*\***: shall not exceed 1 NTU and secchi disk reading of minimum of 1 meter); and
- pH. (Class A, B: Range shall not be outside 7.0 to 8.3 standard units; Class C: Range shall not be outside 6.7 to 8.5 standard units)
- Total Phosphorus (All Classes: shall not exceed 50 µg/L in marine and coastal waters).

\*The term “natural condition” for Dissolved Oxygen and Temperature will be addressed through work in collaboration with the Environmental Protection Agency (EPA) for Class B and C waters during a future Triennial Review of the WQS. During that process DPNR-DEP will outline how they will define reference sites and establish reference conditions. Once developed these criteria will be incorporated into this Assessment Methodology.

\*\*Areas that contain coral reef ecosystems are determined based on Benthic Habitat Atlas of Puerto Rico and the U.S. Virgin Islands (2002).

The conditions for use support for the conventional parameters are as follows:

1. Fully Supporting: For any one pollutant or stressor, criteria exceeded in none of the measurements.
2. Not Supporting: For any one pollutant, criteria exceeded in any of the measurements two or more times within the chosen dataset.

### **Biological Assessment**

When available, DPNR-DEP may use data collected/received from biological monitoring projects. Upon identifying a source of data to apply towards a biological assessment, the conditions for use support, which will be evaluated in accordance with the narrative Biocriteria outlined in the VI Water Quality Standards, as follows:

1. Fully Supporting: Reliable data indicate functioning, sustainable biological assemblages (e.g., fish, macroinvertebrates, or algae) none of which has been modified significantly beyond the natural range of the reference condition.
2. Partially Supporting: At least one assemblage (e.g., fish, macroinvertebrates, or algae) indicates moderate modification of the biological community compared to the reference condition.
3. Not Supporting: At least one assemblage indicates nonsupport. Data clearly indicates severe modification of the biological community compared to the reference condition.

DEP received no biological data for the 2016-2017 reporting cycle, and no biocriteria assessments were undertaken in this assessment cycle. As DPNR-DEP continues its ongoing efforts to improve the VI Water Quality Standards, criteria will be set for reference conditions/sites which will assist in completing biocriteria assessments for various waterbody classes.

DPNR-DEP is working on establishing a baseline for biotic communities in order to be able to better define above noted criteria such as “minimal”, “evident”, “modified significantly”, “moderate modification”, and “severe modification”. These communities shall be assessed by comparison to reference conditions(s) with similar abiotic and biotic environmental settings that represent the optimal or least disturbed condition for that system. Such reference conditions shall be those observed to support the greatest community diversity, and abundance of aquatic life as is expected to be or has been historically found in natural settings essentially undisturbed or minimally disturbed by human impacts, development, or discharges.

This condition shall be determined by consistent sampling and reliable measures of selected indicator communities of flora and/or fauna and may be used in conjunction with other measures of water quality. Waters shall be of a sufficient quality to support a resident biological community as defined by metrics based upon reference conditions. These narrative biological criteria shall apply to fresh water, wetlands, estuarine, mangrove, seagrass, coral reef and other marine ecosystems based upon their respective reference conditions and metrics.

There is some ongoing Territory-wide biological monitoring of marine communities being done by the University of the Virgin Islands (UVI). Limited coral reef and fish monitoring in specific areas has also been conducted by other local and federal groups (University of the Virgin Islands, National Oceanographic and Atmospheric Administration, and US National Park Service).

Through the University of the Virgin Islands (UVI) in conjunction with the NOAA Coral Reef Conservation Program, NOAA Protected Species, and the USVI Department of Planning and Natural Resources (CZM division), annual to semi-annual assessments of coral health, benthic community structure, fish community structure, and physical dynamics is done at 33 sites down to 65 m (220 ft) depth. These studies are done in an effort to create a data repository for use in future bio-assessment and criteria development. Data reports on these ongoing efforts, called the US Virgin Islands Territorial Coral Reef Monitoring Program (TCRMP), can be found here: <https://sites.google.com/site/usvitcrmp/>

Additionally, DPNR has conducted two phases of a project in collaboration with the University of the Virgin Islands to correlate water quality and coral health. These projects were funded by Supplemental 106 Funds and were completed between FY10-14. DPNR intends to fund a third phase of this biological study using additional Supplemental 106 Funds.

## Listing Rules

**Minimum Number of Samples:** Unless described differently for a particular parameter, the minimum data set consists of eight (8) samples. These recommendations are intended to ensure that existing water quality conditions are accurately portrayed by the data and that the results do not reflect transitional conditions. The Department will consider a data set which does not meet this minimum requirement on a case-by-case basis to determine if the data adequately characterizes the water quality conditions. Summer-only sampling for nutrients, pathogenic quality, and temperature may be acceptable since summer generally represents the critical condition for these parameters. If the Department determines that the data set adequately represents water quality conditions and there are at least two exceedances of the Surface Water Quality Standards, this limited data set will be used to determine that a use is not attained.

This methodology groups assessments as follows:

Primary Contact Recreation (PCR) Indicators	Aquatic Life Use Support (ALUS) Indicators
Microbiological Assessment* Beach Closing Assessment* Toxicant Assessment (Human Health) Other Parameters	Conventional Assessment* Toxicant Assessment (Aquatic Life) Toxicity Assessment Habitat Assessment Biological Assessment

\*These parameters were used in making the assessments used for listing during this reporting cycle.



**Category 1**

The assessment unit is placed in this category if it meets the water quality standards for the parameters that define support for both Primary Contact Recreation (PCR) & Aquatic Life Use Support (ALUS).

**Category 2**

The assessment unit is placed in this category if it attains water quality standards for the parameters that define support for either PCR or ALUS but not all uses are supported.

**Category 3**

The assessment unit is placed under the appropriate subcategory (3A, 3B, 3C, 3D) if insufficient or no data are available to determine if water quality standards are attained and any designated use is supported. *Note: The Virgin Islands considers insufficient data as anything less than eight points of monitoring data. Waters with less than eight points of monitoring data may be reviewed on a case-by-case basis if the limited data strongly suggests that water quality standards are exceeded, and the designated uses are impaired. Such waters may be eligible for inclusion on the 303(d) List.*

This category contains four distinct subcategories:

***Category 3A***

No data are available from any of the identified data sources for the assessment unit in question.

***Category 3B***

Insufficient Data are available from any of the identified data sources for the assessment unit in question. Insufficient data is defined as less than eight points of monitoring data. This category differs from Category 2 in that this condition must apply to all designated uses.

***Category 3C***

Inconclusive Data are available from any of the identified data sources for the assessment unit in question. This might include information from studies that do not directly provide information related to water quality standards.

***Category 3D***

Unreliable or low-quality data is available from any of the identified data sources for the assessment unit in question. Unreliable or low-quality data is defined as data sets that have significant gaps, obvious anomalies, etc.

**Category 4**

Assessment units that are found to be partially or not supporting for one or both designated uses are placed in category 4 under the appropriate subcategory (4A, 4B, 4C), but does not require the development of a TMDL.

This category contains three distinct subcategories:

***Category 4A***

The assessment unit is placed in this category if it was previously listed on the 303(d) list and a TMDL has been established and approved by EPA.

***Category 4B***

The assessment unit is placed into this category only if other pollution control requirements are expected to address all water-pollutant combinations and attain all water quality standards within a reasonable period of time. The Virgin Islands considers a reasonable period of time as being the time between reporting cycles. If the impairment is the result of a point source discharge, it is expected that the Territorial Pollution Discharge Elimination System (TPDES) program will take appropriate measures to control point source pollution. If the impairment is the result of non-point source pollution, DPNR will provide evidence that a pollution control measure is in place.

***Category 4C***

The assessment unit is placed into this category if the impairment was not caused by a pollutant, but instead is caused by pollution. Assessment Units placed in Category 4C do not require the development of a TMDL. Pollution, as defined by the CWA is “the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water” (section 502(19)). In some cases, the pollution is caused by the presence of a pollutant and a TMDL is required. In other cases, pollution does not result from a pollutant and a TMDL is not required. These assessment units should be scheduled for monitoring to confirm that there continues to be no pollutant associated with the failure to meet the water quality standard and to support water quality management actions necessary to address the cause(s) of the impairment

**Category 5**

The assessment unit is placed into this category if water quality standards are exceeded and a TMDL must be established. Assessment units that are placed into Category 5 will be placed on the 2018 303(d) List.

**De-listing**

As a result of the abovementioned data restrictions, DPNR de-listed some Assessment Units during the 2014-2015 reporting cycle, details of which can be found on the 2018 303(d) List.

## **Appendix A. Monitoring Frequency for USVI Assessment Units**

Assessment Unit ID	Assessment Unit Name & Class	Frequency/ Parameters	Associated Monitoring Stations	Monitoring Frequency for Reporting Cycle
VI-STT-01	Botany Bay Class B	pH, Temperature, Dissolved Oxygen, Depth, Salinity, Secchi, Fecal Coliform/ Enterococci Bacteria, Turbidity monitored Quarterly	STT-9 Botany Bay	<b>STT-9</b> 12/7/2015 3/9/2016 4/12/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored
VI-STT-02	Stumpy Bay Class B		STT-10 Stumpy Bay	<b>STT-10</b> 12/7/2015 3/9/2016 4/12/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored
VI-STT-03	Botany Bay subwatershed , offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STT-04	Santa Maria Bay Class B		STT-11 Santa Maria Bay	<b>STT-11</b> 12/7/2015 3/9/2016 4/12/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored

VI-STT-05	Caret Bay Class B		STT-12 Caret Bay	<b>STT-12</b>  12/7/2015 3/9/2016 4/12/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored
VI-STT-06	Neltjeberg Bay Class B		STT-13B Neltjeberg Bay	<b>STT-13B</b>  Not monitored.
VI-STT-07	Dorothea Class B		STT-13 Dorothea	<b>STT-13</b>  12/7/2015 3/9/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored
VI-STT-08	Hull Bay Class B		STT-14 Hull Bay, VI616865 Hull Bay	<b>STT-14</b>  12/7/2015 3/9/2016 4/12/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored  <b>VI616865</b> --Enterococci/Turbidity monitored weekly
VI-STT-09	Dorothea Bay		There are currently no	Currently no monitoring stations within this

	subwatershed , offshore Class B		monitoring stations within this assessment unit.	assessment unit and therefore, no monitoring was conducted.
VI-STT-10	Magens Bay Class B		STT-15, STT- 15A, STT-15B Magens Bay, VI672756 Magens Bay	<b>STT-15, 15A and 15B</b>  12/7/2015 3/9/2016 4/12/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored  <b>VI672756</b> --Enterococci/Turbidity monitored weekly
VI-STT-11	Northwest St. Thomas HUC14, offshore Class B		STT-OFF1 STT NW-1, STT- OFF9 STT NW- 3	<b>STT-OFF1</b> FY16-17 Not monitored  <b>STT-OFF9</b> FY16-17 Not monitored
VI-STT-12	Lovenlund Bay Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STT-13	Mandahl Bay (Marina) Class B		STT-16B Mandahl Bay Entrance, STT- 16C Mandahl Point Entrance	<b>STT-16B</b>  12/7/2015 3/9/2016 4/12/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored

				<b>STT-16C</b> –Not monitored; Site removed from monitoring network.
VI-STT-14	Tutu Bay		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STT-15	Sunsi Bay Class B		STT-17B Sunsi Bay	<b>STT-17B</b>  12/7/2015 3/9/2016 4/12/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored
VI-STT-16	Spring Bay Class B		STT-17A Spring Bay	<b>STT-17A</b>  12/7/2015 3/9/2016 4/12/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored
VI-STT-17	Mandahl Bay subwatershed , offshore Class B		STT-16A Mandahl Bay, STT-18 Coki Point Bay, VI577932 Coki Point	<b>STT-16A</b>  12/7/2015 3/9/2016 4/12/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017

				<p>All parameters monitored</p> <p><b>STT-18</b></p> <p>12/7/2015 3/9/2016 4/12/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017</p> <p>All parameters monitored</p> <p><b>VI577932</b> --Enterococci/Turbidity monitored weekly</p>
VI-STT-18	Water Bay Class B		STT-19 Water Bay, VI591668 Water Bay	<p><b>STT-19</b></p> <p>12/7/2015 3/9/2016 4/12/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017</p> <p>All parameters monitored</p> <p><b>VI591668</b> --Enterococci/Turbidity monitored weekly</p>
VI-STT-19	Smith Bay Class B		STT-20 Smith Bay, VI431925 Lindquist Beach	<p><b>STT-20</b></p> <p>12/7/2015 3/9/2016 4/14/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017</p> <p>All parameters monitored</p> <p><b>VI431925</b></p>



				--Enterococci/Turbidity monitored weekly
VI-STT-20	Smith Bay subwatershed , offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STT-21	St. John Bay Class B		STT-21A St. John Bay, VI327776 Sapphire Beach	<b>STT-21A</b>  12/7/2015 3/9/2016 4/14/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored  <b>VI327776</b> --Enterococci/Turbidity monitored weekly
VI-STT-22	Red Bay Class B		STT-21B Red Bay	<b>STT-21B</b>  12/7/2015 3/9/2016 4/14/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored
VI-STT-23	Vessup Bay Class B		STT-22B Vessup Bay, USGS-50263000 Vessup Bay West	<b>STT-22B</b>  12/7/2015 3/9/2016 4/14/2016 6/8/2016 10/11/2016 12/5/2016 3/23/2017 6/27/2017

				All parameters monitored
VI-STT-24	Red Hook Bay Class B		STT-22A Red Hook Bay, USGS-50263500 Vessup Bay East, VI764950 Vessup Bay	<b>STT-22A</b>  12/7/2015 3/9/2016 4/14/2016 6/8/2016 10/11/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored  <b>VI764950</b> --Enterococci/Turbidity monitored weekly
VI-STT-25	Great Bay Class B		STT-23 Great Bay, VI505006 Bluebeards Beach	<b>STT-23</b>  12/7/2015 3/9/2016 4/18/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored  <b>VI505006</b> --Enterococci/Turbidity monitored weekly
VI-STT-26	Red Hook Bay, offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STT-27	St. James Islands, offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STT-28	Cowpet Bay		STT-24 Cowpet	<b>STT-24</b>

	Class B		Bay, STT-24A Cowpet Bay West	12/7/2015 3/9/2016 4/18/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored  <b>STT-24A:</b> Not monitored
VI-STT-29	St. James Bay Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STT-30A	Northeast St. Thomas HUC14, offshore north Class B		STT-OFF6 STT North-2, STT-OFF12 STT NE-4	<b>STT-OFF6</b> FY16-17 Not monitored  <b>STT-OFF12</b> FY16-17 Not monitored
VI-STT-30B	Northeast St. Thomas HUC14, offshore south Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STT-31	Nazareth Bay Class B		STT-25 Nazareth Bay, STT-25B Secret Harbour, STT-26, STT-26A Benner Bay, VI389422 Secret Harbor	<b>STT-25</b>  12/7/2015 3/9/2016 4/18/2016 6/8/2016 10/11/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored  <b>STT-25B</b> – Not monitored

				<b>STT-26</b>  12/7/2015 3/9/2016 4/12/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored
VI-STT-32	Jersey Bay, offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STT-33	Benner Bay Class B		USGS-50265900 Benner Bay South	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STT-34	Benner Bay Lagoon Marina Class B		STT-27D Mangrove Lagoon, Near Lavida Marina, STT-27E Mangrove Lagoon, Near Compass Point, USGS-50265700 Benner Bay North	<b>STT-27D and STT-27E</b>  12/7/2015 3/9/2016 4/18/2016 6/8/2016 10/11/2016 12/5/2016 3/23/2017 6/30/2017  All parameters monitored
VI-STT-35	Mangrove Lagoon Class B		STT-27A Mangrove Lagoon, Near Treatment Plant, STT-27B Mangrove Lagoon, Off Sanitary Landfill	<b>STT-27A, STT-27B and STT-27C</b>  12/7/2015 3/9/2016 4/18/2016 6/8/2016 10/11/2016

			(East of Ecotours), STT-27C Mangrove Lagoon, Near Tropical Marine Fuel Dock, USGS-50278800 Mangrove Lagoon West, USGS-50278500 Mangrove Lagoon East	12/5/2016 3/23/2017 6/30/2017  All parameters monitored
VI-STT-36	Frenchman Bay subwatershed , east Class B		STT-28A Bovoni Bay, STT-28B Bolongo Bay, VI951607 Bolongo Bay	<b>STT-28A</b>  12/1/2015 12/7/2015 3/9/2016 4/14/2016 6/8/2016 10/11/2016 12/1/2016 3/28/2017 6/30/2017 All parameters monitored  <b>STT-28B</b>  12/7/2015 3/9/2016 4/14/2016 6/8/2016 10/11/2016 12/1/2016 3/28/2017 6/30/2017 All parameters monitored  <b>VI891065</b> --Enterococci/Turbidity monitored weekly
VI-STT-37	Frenchman Bay Class B		VI891065 Frenchman's Bay	<b>VI891065</b> --Enterococci/Turbidity monitored weekly
VI-STT-38	Limetree Bay Class B		STT-29B Limetree Bay,	<b>STT-29B</b>

			<b>VI776527</b> Limetree Bay  12/1/2015 3/1/2016 4/14/2016 6/1/2016 9/6/2016 12/7/2016 2/23/2017 6/26/2017 All parameters monitored  <b>VI776527</b> --Enterococci/Turbidity monitored weekly
VI-STT-39	Morningstar Bay Class B		<b>STT-29A</b> Frenchman Bay, VI937158 Morningstar Bay  12/1/2015 3/1/2016 4/14/2016 6/1/2016 9/6/2016 12/7/2016 2/23/2017 6/26/2017 All parameters monitored  <b>VI937158</b> --Enterococci/Turbidity monitored weekly
VI-STT-40	Pacquereau Bay Class B		<b>STT-31A</b> Flamboyant Cove  12/1/2015 3/1/2016 4/14/2016 6/1/2016 9/6/2016 12/7/2016 2/23/2017 6/26/2017 All parameters monitored
VI-STT-41	Frenchman Bay subwatershed , offshore Class B		<b>STT-30</b> Morningstar Bay  12/1/2015 3/1/2016 4/14/2016

				6/1/2016 9/6/2016 12/7/2016 2/23/2017 6/26/2017 All parameters monitored
VI-STT-42	Southeast St. Thomas HUC14, offshore Class B		STT-OFF8 STT South-3, STT-OFF5 STT North2	<b>STT-OFF8 &amp; STT-OFF5</b> FY16-17 Not monitored
VI-STT-43	St. Thomas Harbor, inner Class C		STT-31B Hassel Island, Off Navy Dock, STT-31C Hassel Island, Careening Cove, STT-32A Long Bay, Near South Dolphin, STT-32B Long Bay, Northeast Corner, STT-33A Long Bay, Off Outfall, STT-33B Long Bay, Off Outfall, STT-34 Long Bay, Off Pump Station, STT-35 Groden Bay, STT-36 St. Thomas Harbor, North of Coast Guard Dock, STT-37 St. Thomas Harbor, Cay Bay, STT-38 Haulover Cut	<b>STT-31B</b> 12/1/2015 3/1/2016 4/14/2016 6/1/2016 9/6/2016 12/7/2016 2/23/2017 6/26/2017 All parameters monitored  <b>STT-31C</b> 12/1/2015 3/1/2016 4/13/2016 6/1/2016 9/6/2016 12/7/2016 2/23/2017 6/26/2017 All parameters monitored  <b>STT-32A, 32B, 33A, 33B</b> 12/1/2015 3/1/2016 4/14/2016 6/1/2016

				<p>9/6/2016 12/7/2016 2/23/2017 6/26/2017</p> <p>All parameters monitored</p> <p><b>STT-34</b> – Not monitored</p> <p><b>STT-35</b></p> <p>12/1/2015 3/1/2016 4/14/2016 6/1/2016 9/6/2016 12/7/2016 2/23/2017 6/26/2017</p> <p>All parameters monitored</p> <p><b>STT-36</b></p> <p>12/1/2015 3/1/2016 4/14/2016 6/1/2016 9/6/2016 12/7/2016 2/23/2017 6/26/2017</p> <p>All parameters monitored</p> <p><b>STT-37</b></p> <p>12/1/2015 3/1/2016 4/14/2016 6/1/2016</p>
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				<p>9/6/2016 12/7/2016 2/23/2017 6/26/2017</p> <p>All parameters monitored</p> <p><b>STT-38</b></p> <p>12/1/2015 3/1/2016 4/14/2016 6/1/2016 9/6/2016 12/7/2016 2/23/2017 6/26/2017</p> <p>All parameters monitored</p>
VI-STT-44	St. Thomas Harbor, outer Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STT-45	Gregerie Channel Class B		STT-1 Crown Bay, Near Outfall, STT-39 Water Isle, East Gregorie Channel	<p><b>STT-1</b></p> <p>12/1/2015 3/1/2016 4/13/2016 6/1/2016 9/6/2016 12/7/2016 2/23/2017 6/26/2017</p> <p>All parameters monitored</p> <p><b>STT-39</b></p> <p>12/1/2015</p>

				3/1/2016 4/13/2016 6/1/2016 9/6/2016 12/7/2016 2/23/2017 6/26/2017  All parameters monitored
VI-STT-46	Sprat Bay Class B		STT-42 Water Island Sprat Bay	<b>STT-42</b>  12/1/2015 3/1/2016 4/13/2016 6/1/2016 9/6/2016 12/7/2016 2/23/2017 6/26/2017  All parameters monitored
VI-STT-47	Hassel Island at Haulover Cut to Regis Point Class C		STT-2 Crown Bay, Near Tamarind Outlet, STT-3 Subbase	<b>STT-2</b>  12/1/2015 3/1/2016 4/13/2016 6/1/2016 9/6/2016 12/7/2016 2/23/2017 6/26/2017  All parameters monitored  <b>STT-3</b>  12/1/2015 3/1/2016 4/13/2016

				6/1/2016 9/6/2016 12/7/2016 2/23/2017 6/26/2017  All parameters monitored
VI-STT-48	Water Isle Hotel, Beach Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STT-49	Druif Bay Class B		STT-40 Water Isle Hotel, Beach	<b>STT-40</b>  12/1/2015 3/1/2016 4/13/2016 6/1/2016 9/6/2016 12/7/2016 3/23/2017 6/26/2017  All parameters monitored
VI-STT-50	Flamingo Class B		STT-41 Water Island Flamingo Bay	<b>STT-41</b>  12/1/2015 3/1/2016 4/13/2016 6/1/2016 9/6/2016 12/7/2016 2/23/2017 6/26/2017  All parameters monitored
VI-STT-51	Krum Bay Class C		STT-4 Krum Bay	<b>STT-4</b>

				12/1/2015 3/1/2016 4/13/2016 6/1/2016 9/6/2016 12/7/2016 3/23/2017 6/26/2017  All parameters monitored
VI-STT-52	Lindbergh Bay Class B		STT-5A Lindbergh Bay East, STT-5B Lindbergh Bay West, STT-5C WAPA Outfall, VI514102 Lindberg Bay	<b>STT-5A</b>  12/1/2015 3/1/2016 4/13/2016 6/1/2016 9/6/2016 12/7/2016 3/23/2017 6/26/2017  All parameters monitored  <b>STT-5B</b>  12/1/2015 3/1/2016 4/13/2016 6/1/2016 9/6/2016 12/7/2016 3/23/2017 6/26/2017  All parameters monitored  <b>STT-5C</b>  4/13/2016

				All parameters monitored  <b>VI514102</b> --Enterococci/Turbidity monitored weekly
VI-STT-53	Cyril E. King Airport subwatershed , offshore Class B		STT-6C S.W. Road, Near Red Point Outfall	<b>STT-6C</b>  12/1/2015 3/1/2016 4/13/2016 6/1/2016 9/6/2016 12/7/2016 3/23/2017 6/26/2017 All parameters monitored
VI-STT-54	Perseverance Bay, offshore Class B		STT-6B College Cove	<b>STT-6B</b>  12/1/2015 3/1/2016 4/13/2016 6/1/2016 9/6/2016 12/7/2016 3/23/2017 6/26/2017  All parameters monitored
VI-STT-55	Brewers Bay Class B		STT-7A Brewers Bay, VI293962 Brewer's Bay	<b>STT-7A</b>  12/1/2015 3/1/2016 4/13/2016 6/1/2016 10/20/2016 12/5/2016 3/23/2017 6/26/2017 All parameters monitored

				<b>VI293962</b> --Enterococci/Turbidity monitored weekly
VI-STT-56	Perseverance Bay Class B		STT-7B Perseverance Bay	<b>STT-7B</b>  12/1/2015 3/9/2016 4/13/2016 6/8/2016 10/20/2016 12/5/2016 3/28/2017 6/26/2017  All parameters monitored
VI-STT-57	Fortuna Bay Class B		STT-8 Fortuna Bay	<b>STT-8</b>  12/7/2015 3/9/2016 4/13/2016 6/8/2016 10/20/2016 12/5/2016 3/23/2017 6/27/2017 All parameters monitored
VI-STT-58	Fortuna Bay subwatershed , offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STT-59	Northwest St. Thomas HUC14, offshore Class B		STT-6A Airport Runway, STT- OFF2 STT NW- 1, STT-OFF11 STT SW-4	<b>STT-6A</b>  4/13/2016  All parameters monitored  <b>STT-OFF 2 and 11</b> FY16-17 Not monitored

VI-STJ-01	Caneel Bay Class B		STJ-54 Caneel Bay, NPS-1 Caneel Bay, VI658467 Caneel Beach	<b>STJ-54</b>  4/21/2016  All parameters monitored  <b>VI658467</b> --Enterococci/Turbidity monitored weekly
VI-STJ-02	Hawksnest Bay Class B		STJ-44B Hawksnest Bay, NPS-3 Hawksnest (middle beach), NPS-4 Hawksnest (Gibney Beach), VI255380 Oppenheimer	<b>STJ-44B</b>  12/9/2015 3/7/2016 4/21/2016 6/6/2016 10/25/2016 12/1/2016 3/28/2017 6/28/2017  All parameters monitored  <b>VI255380</b> --Enterococci/Turbidity monitored weekly
VI-STJ-03	Trunk Bay Class A		STJ-44A Trunk Bay, NPS-5 Trunk Bay	<b>STJ-44A</b>  12/9/2015 3/7/2016 4/21/2016 6/6/2016 10/25/2016 12/1/2016 3/28/2017 6/28/2017  All parameters monitored
VI-STJ-04	Hawksnest Bay subwatershed , offshore Class B		NPS-2 Henley Cay	Currently no monitoring done within this assessment unit.

VI-STJ-05	Cinnamon Bay Class B		STJ-44C Cinnamon Bay, NPS-6 Peter Bay, NPS-7 Cinnamon Bay	<b>STJ-44C</b>  12/9/2015 3/7/2016 4/21/2016 6/6/2016 10/25/2016 12/1/2016 3/28/2017 6/28/2017  All parameters monitored
VI-STJ-06	Maho Bay/Francis Bay Class B		STJ-44D Francis Bay, NPS-8 Maho Bay, NPS-9 Francis Bay, VI536165 Big Maho Bay	<b>STJ-44D</b>  12/9/2015 3/7/2016 4/21/2016 6/6/2016 10/25/2016 12/1/2016 3/28/2017 6/28/2017  All parameters monitored  <b>VI536165</b> Not currently sampled.
VI-STJ-07	Maho Bay subwatershed , offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STJ-08	Mary Point Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STJ-09	Leinster Bay Class B		NPS-10 Leinster Bay	Currently no monitoring done within this assessment unit.



VI-STJ-10	Minnebeck Bay Class B		NPS-11 Haulover Bay, NPS-30 Newfoundland Bay, NPS-31 Haulover East	Currently no monitoring done within this assessment unit.
VI-STJ-11	Newfound Bay Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STJ-12	North St. John HUC14, offshore Class B		STJ-OFF3 STJ NW-1, STJ-OFF10 STJ East-3	<b>STJ-OFF 3</b> FY16-17 Not monitored  <b>STJ-OFF 10</b> FY16-17 Not monitored
VI-STJ-13	Coral Harbor Class B		STJ-53 Coral Bay, NPS-15 Coral Bay Dock, NPS-16 Johnson Bay, VI823989 Johnson's Bay, STJ-56 Johnson Bay	<b>STJ-53 and 56</b>  12/9/2015 3/7/2016 4/21/2016 6/6/2016 10/25/2016 12/1/2016 3/28/2017 6/28/2017 All parameters monitored  <b>VI823989</b> --Enterococci/Turbidity monitored weekly
VI-STJ-14	Hurricane Hole Class B		NPS-13 Water Creek, NPS-14 Princess Bay	Currently no monitoring done within this assessment unit.
VI-STJ-15	Round Bay Class B		STJ-57 Round Bay	<b>STJ-57</b>  12/9/2015 3/7/2016 4/21/2016

				6/6/2016 10/25/2016 12/1/2016 3/28/2017 6/28/2017  All parameters monitored
VI-STJ-16	Coral Bay Class B		NPS-12 Long Point, STJ-58 Privateer Bay	<b>STJ-58</b>  12/9/2015 3/7/2016 4/21/2016 6/6/2016 10/25/2016 12/1/2016 3/28/2017 6/28/2017 All parameters monitored
VI-STJ-17	Salt Pond Bay Class B		STJ-52 Salt Pond Bay, NPS-17 Salt Pond Bay	<b>STJ-52</b>  12/9/2015 3/7/2016 4/21/2016 6/6/2016 10/25/2016 12/1/2016 3/28/2017 6/28/2017 All parameters monitored
VI-STJ-18	Grootman Bay Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STJ-19	Great Lameshur Bay Class B		STJ-51 Great Lameshur Bay, STJ-50 Little Lameshur Bay,	<b>STJ-50 and 51</b>  12/9/2015 3/7/2016

			NPS-18 Great Lameshur Bay, NPS-19 Yowsi Point, NPS-20 Little Lameshur Bay	4/21/2016 6/6/2016 10/25/2016 12/1/2016 3/28/2017 6/28/2017  All parameters monitored
VI-STJ-20	Southeast St. John HUC14, offshore Class B		STJ-OFF7 STJ East-2	<b>STJ-OFF 7</b> FY16-17 Not monitored
VI-STJ-21	Genti Bay, nearshore Class B		STJ-49 Genti Bay, NPS-21 Reef Bay	<b>STJ-49</b>  12/9/2015 3/7/2016 4/21/2016 6/6/2016 10/25/2016 12/1/2016 3/28/2017 6/28/2017  All parameters monitored
VI-STJ-22	Genti Bay, offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STJ-23	Fish Bay Class B		STJ-48 Fish Bay, NPS-22 Fish Bay	<b>STJ-48</b>  12/9/2015 3/7/2016 4/21/2016 6/6/2016 10/25/2016 12/1/2016 3/28/2017

				6/28/2017  All parameters monitored
VI-STJ-24	Fish Bay subwatershed , offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STJ-25	Rendezvous Bay Class B		STJ-47 Rendezvous Bay, NPS-23 Rendezvous Bay, VI204627 Klain Bay, VI402599 Hart Bay	<b>STJ-47</b>  12/9/2015 3/7/2016 4/21/2016 6/6/2016 10/25/2016 12/1/2016 3/28/2017 6/28/2017  All parameters monitored  <b>VI204627, VI402599</b> --Enterococci/Turbidity monitored weekly
VI-STJ-26	Chocolate Hole Class B		STJ-46 Chocolate Hole, NPS-24 Chocolate Hole, VI391298 Chocolate Hole	<b>STJ-46</b>  12/9/2015 3/7/2016 4/21/2016 6/6/2016 10/25/2016 12/1/2016 3/28/2017 6/28/2017  All parameters monitored  <b>VI391298</b> FY16-17 Not monitored

VI-STJ-27	Rendezvous Bay subwatershed, offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STJ-28	Great Cruz Bay Class B		STJ-45 Great Cruz Bay. NPS-25 Great Cruz Bay, VI779192 Great Cruz Bay	<b>STJ-45</b>  12/9/2015 3/7/2016 4/21/2016 6/6/2016 10/25/2016 12/1/2016 3/28/2017 6/28/2017  All parameters monitored  <b>VI779192</b> --Enterococci/Turbidity monitored weekly
VI-STJ-29	Turner Bay/Enighed Pond Class C		STJ-55 Turner Bay, NPS-26 Turner Bay	<b>STJ-55</b>  12/9/2015 3/7/2016 4/18/2016 6/6/2016 10/25/2016 12/1/2016 3/28/2017 6/28/2017  All parameters monitored
VI-STJ-30	Cruz Bay Class B		STJ-43A Cruz Bay, North, STJ-43B Cruz Bay, South, STJ-43C Cruz Bay, North of Seaplane Ramp, STJ-43D Cruz	<b>STJ-43A,43B, 43C</b>  12/9/2015 1/26/2016 3/7/2016 4/18/2016 6/6/2016

			Bay Creek North, NPS-27 Cruz Bay (ferry dock), NPS-28 Cruz Bay (airplane ramp), NPS-29 Cruz Bay (NPS dock), VI309453 Cruz Bay	10/25/2016 12/1/2016 3/28/2017 6/30/2017  All parameters monitored  <b>STJ-43D</b>  12/9/2015 3/7/2016 4/18/2016 6/6/2016 10/25/2016 12/1/2016 3/28/2017 6/30/2017  All parameters monitored  <b>VI309453</b> --Enterococci/Turbidity monitored weekly
VI-STJ-31	Great Cruz Bay watershed, offshore Class B		VI456779 Frank Bay	<b>VI456779</b> --Enterococci/Turbidity monitored weekly
VI-STJ-32	Southwest St. John HUC14, offshore Class B		STJ-OFF4 STJ SW-1	<b>STJ-OFF4</b> FY16-17 Not monitored
VI-STJ-33	Pillsbury Sound Class B		STJ-OFF13 STJ West-4	<b>STJ-OFF13</b> FY16-17 Not monitored
VI-STC-01	Frederiksted, south Class B		There are currently no monitoring stations within	Currently no monitoring stations within this assessment unit and therefore, no monitoring was

			this assessment unit.	conducted.
VI-STC-02	Frederiksted Harbor Class C		STC-28 Frederiksted Pier, STC-29 Frederiksted Public Beach, VI970611 F'sted (Fst. Target)	<b>STC-28 and 29</b>  12/8/2015 1/25/2016 3/23/2016 6/21/2016 9/27/2016 12/13/2016 2/16/2017 5/10/2017 7/25/2017 All parameters monitored  <b>VI970611</b> --Enterococci/Turbidity monitored weekly
VI-STC-03	Lagrange subwatershed , offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-04	Prosperity, nearshore Class B		VI252619 Rainbow (Prosperity)	<b>VI252619</b> --Enterococci/Turbidity monitored weekly
VI-STC-05	Prosperity subwatershed , offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-06	Sprat Hall Beach Class B		STC-30 Sprat Hall Beach, VI645288 Sprat Hall	<b>STC-30</b>  12/8/2015 1/25/2016 3/23/2016 6/21/2016 9/27/2016 12/13/2016 2/16/2017

				5/10/2017 7/25/2017  All parameters monitored  <b>VI645288</b> --Enterococci/Turbidity monitored weekly
VI-STC-07	Creque Dam/Butler Bay Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-08	Hams Bay Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-09	Davis Bay Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-10	Hams Bluff Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-11	Northwest St. Croix HUC14, offshore Class B		STC-OFF1 NW- 1, STC-OFF7 STC West-3	<b>STC-OFF1</b> FY16-17 Not monitored  <b>STC-OFF7</b> FY16-17 Not monitored
VI-STC-12	Cane Bay Class B		STC-32 Cane Bay, VI201013 Cane Bay	<b>STC-32</b>  12/2/2015 1/26/2016



				3/23/2016 6/14/2016 9/27/2016 12/13/2016 2/15/2017 5/10/2017 7/25/2017  All parameters monitored  <b>VI201013</b> --Enterococci/Turbidity monitored weekly
VI-STC-13	Baron Bluff subwatershed Class B		STC-31 Davis Bay, VI398766 Davis Bay	<b>STC-31</b>  12/2/2015 1/26/2016 3/23/2016 6/14/2016 9/27/2016 12/13/2016 2/15/2017 5/10/2017 7/25/2017 All parameters monitored  <b>VI398766</b> --Enterococci/Turbidity monitored weekly
VI-STC-14	Belvedere Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-15	Northside subwatershed Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-16	Salt River Lagoon,		STC-33 Salt River Marina,	<b>STC-33</b>

	Marina Class B		STC-33C Salt River Lagoon, Marina	12/2/2015 1/26/2016 3/23/2016 6/14/2016 9/27/2016 12/13/2016 2/15/2017 5/10/2017 7/19/2017  All parameters monitored  <b>STC-33C</b> – Site no longer monitored
VI-STC-17	Salt River Lagoon, Sugar Bay Class B		STC-33D Salt River Lagoon, Sugar Bay	Currently no monitoring being done in this assessment unit.
VI-STC-18	Salt River Bay Class B		STC-33A,B,E-J Salt River (Columbus Landing Beach), VI146901 Gentle Winds, VI558328 Columbus Landing	<b>STC-33A and 33B</b>  12/2/2015 1/26/2016 3/23/2016 6/14/2016 9/27/2016 12/13/2016 2/15/2017 5/10/2017 7/19/2017  All parameters monitored  <b>STC 33E-J</b> – No longer monitored  <b>VI146901</b> --Enterococci/Turbidity monitored weekly  <b>VI558328</b> --Enterococci/Turbidity monitored weekly

VI-STC-19	Judith Fancy Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-20	Salt River Bay subwatershed , west Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-21	Salt River Bay subwatershed , east Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-22	Northcentral St. Croix HUC14, offshore Class B		STC-OFF4 North-2, STC-OFF11 North-4	<b>STC-OFF4</b> FY16-17 Not monitored  <b>STC-OFF11</b> FY16-17 Not monitored
VI-STC-23	St. Croix-By-the-Sea Class B		STC- 34 St. Croix-By-the-Sea, VI738082 Pelican Cove	<b>STC-34</b>  12/2/2015 1/26/2016 4/6/2016 6/14/2016 9/27/2016 12/14/2016 2/15/2017 5/10/2017 7/19/2017  All parameters monitored  <b>VI38082</b> --Enterococci/Turbidity monitored weekly
VI-STC-24	Long Reef		STC-48 Long	<b>STC-48</b>

	Backreef, west Class C		Reef Backreef, west	12/1/2015 1/27/2016 4/6/2016 6/13/2016 9/27/2016 12/15/2016 2/21/2017 5/10/2017 7/18/2017  All parameters monitored
VI-STC-25	Princess subwatershed , offshore Class C		STC-35 Long Reef Forereef West	<b>STC-35</b>  12/2/2015 1/26/2016 4/6/2016 6/14/2016 9/27/2016 12/14/2016 2/15/2017 5/10/2017 7/19/2017  All parameters monitored
VI-STC-26	Christiansted Harbor Class C		STC-37 Christiansted Harbor Entrance West, STC-40 St. Croix Marine, STC-41 Gallows Bay, STC-42 Public Wharf, STC-43 Water Gut Storm Drain, STC-44 Protestant Cay Beach, STC-45 Christiansted Harbor, STC-46	<b>STC-37</b>  1/27/2016 4/6/2016 6/13/2016 9/27/2016 12/15/2016 2/15/2017 5/11/2017 7/18/2017  All parameters monitored  <b>STC-40</b>

			WAPA Intake, STC-47 Mill Harbor Condominium Beach, STC-49 Long Reef Back Reef East, VI572166 Condo Row (Princess), VI359239 Protestant Cay	12/1/2015 1/27/2016 3/23/2016 6/13/2016 9/28/2016 12/15/2016 2/15/2017 5/11/2017 7/18/2017  All parameters monitored  <b>STC-41, 42, 43, 44, 45, 46  and 47</b>  12/1/2015 1/27/2016 3/23/2016 6/13/2016 9/28/2016 12/15/2016 2/15/2017 5/11/2017 7/18/2017  All parameters monitored  <b>STC-49</b>  12/1/2015 1/27/2016 4/6/2016 6/13/2016 9/27/2016 12/15/2016 2/15/2017 5/11/2017 7/18/2017  All parameters monitored
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				<b>VI572166 and VI359239</b> --Enterococci/Turbidity monitored weekly
VI-STC-27	Long Reef Forereef, east Class B		STC-36 Long Reef Forereef East, STC-35A LBJ (Pump Station) Outfall	<b>STC-36 and 35A</b>  12/2/2015 12/15/2015 1/26/2016 4/6/2016 6/14/2016 9/27/2016 12/14/2016 2/15/2017 5/10/2017 7/19/2017  All parameters monitored
VI-STC-28	Altona Lagoon Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-29	Christiansted Harbor, east Class C		STC-1 Lagoon Recreational Beach, STC-39 Altona Lagoon Inlet	<b>STC-1</b>  12/1/2015 1/27/2016 3/23/2016 6/13/2016 9/28/2016 12/14/2016 2/15/2017 5/11/2017 7/19/2017 All parameters monitored  <b>STC-39</b>  12/1/2015 1/27/2016

				3/23/2016 6/13/2016 9/28/2016 12/15/2016 2/15/2017 5/11/2017 7/18/2017  All parameters monitored
VI-STC-30	Beauregard Bay Class B		STC-2 Ft. Louise Augusta Beach, STC-38 Christiansted Harbour Entrance-East, VI213332 New Fort Louise Augusta	<b>STC-2</b>  12/1/2015 1/26/2016 3/23/2016 6/13/2016 9/28/2016 12/14/2016 2/15/2017 5/11/2017 7/19/2017 All parameters monitored  <b>STC-38</b>  12/1/2015 1/26/2016 6/13/2016 9/28/2016 12/14/2016 2/15/2017 5/11/2017 7/18/2017 All parameters monitored  <b>VI213332</b> --Enterococci/Turbidity monitored weekly
VI-STC-31	Buccaneer Beach Class B		STC-3 Buccaneer Hotel, VI651587	<b>STC-3</b>

			Buccaneer	12/2/2015 1/26/2016 3/23/2016 6/14/2016 9/28/2016 12/14/2016 2/15/2017 5/8/2017 7/19/2017  All parameters monitored  <b>VI651587</b> --Enterococci/Turbidity monitored weekly
VI-STC-32	Altona Lagoon subwatershed , offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-33	Punnett Bay Class B		VI610321 Shoy's	<b>VI610321</b> --Enterococci/Turbidity monitored weekly
VI-STC-34	Punnett Point, east Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-35	Tamarind Reef Lagoon (Southgate Lagoon) Class B		STC-4 Tamarind Reef Lagoon	<b>STC-4</b>  12/2/2015 1/26/2016 4/6/2016 6/14/2016 9/28/2016 12/14/2016 2/15/2017 5/8/2017 7/19/2017



				All parameters monitored
VI-STC-36	Green Cay Beach Class B		VI563397 Chenay Bay Beach	<b>VI563397</b> --Enterococci/Turbidity monitored weekly
VI-STC-37	Southgate subwatershed , offshore Class B		STC-5 Green Cay Beach	<b>STC-5</b>  12/2/2015 12/15/2015 1/26/2016 4/6/2016 6/14/2016 9/28/2016 12/14/2016 2/15/2017 5/8/2017 7/25/2017 All parameters monitored
VI-STC-38	Solitude Backreef Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-39	Teague Bay Class B		STC-8 Reef Club Beach, STC-9 St. Croix Yacht Club Beach, VI381319 Teague Bay (Reef)	<b>STC-8 and 9</b>  12/2/2015 1/26/2016 4/6/2016 6/14/2016 9/28/2016 12/14/2016 2/14/2017 5/8/2017 7/19/2017  All parameters monitored  <b>VI381319</b> --Enterococci/Turbidity

				monitored weekly
VI-STC-40	Teague Bay Backreef Class B		STC-10 Cramers Park, VI351774 Cramer's Park	<b>STC-10</b>  12/2/2015 1/26/2016 4/6/2016 6/14/2016 9/28/2016 12/14/2016 2/14/2017 5/8/2017 7/19/2017  All parameters monitored  <b>VI351774</b> --Enterococci/Turbidity monitored weekly
VI-STC-41	Buck Island Backreef Class A		STC-6 Buck Island Backreef, STC-7 Buck Island Anchorage	<b>STC-6 and 7</b>  12/2/2015 12/15/2015 1/26/2016 4/6/2016 6/14/2016 9/28/2016 12/14/2016 2/15/2017 5/8/2017 7/19/2017  All parameters monitored
VI-STC-42	Buck Island Forereef Class A		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-43	Solitude and Teague Bay subwatershed		There are currently no monitoring	Currently no monitoring stations within this assessment unit and

	, offshore Class B		stations within this assessment unit.	therefore, no monitoring was conducted.
VI-STC-44	Northeast St. Croix HUC14, offshore Class B		STC-OFF8 North-3	<b>STC-OFF8</b> FY16-17 Not monitored
VI-STC-45	Isaac Bay Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-46	Grapetree Bay Class B		STC-11B Isaacs Bay Forereef	<b>STC-11B</b>  12/8/2015 1/26/2016 3/22/2016 6/20/2016 9/26/2016 12/14/2016 2/14/2017 5/8/2017 7/24/2017  All parameters monitored
VI-STC-47	Turner Hole Backreef Class B		STC-12 Grapetree Beach, VI297470 Grapetree Beach	<b>STC-12</b>  12/8/2015 1/26/2016 3/22/2016 6/20/2016 9/26/2016 12/14/2016 2/14/2017 5/8/2017 7/24/2017  All parameters monitored

				<b>VI297470</b> --Enterococci/Turbidity monitored weekly
VI-STC-48	Turner Hole subwatershed , offshore Class B		STC-OFF5 East- 2	<b>STC-OFF5</b> FY16-17 Not monitored
VI-STC-49	Madam Carty Backreef Class B		STC-13B Robin Bay	<b>STC-13B</b>  12/8/2015 1/26/2016 3/22/2016 6/20/2016 9/26/2016 12/14/2016 2/14/2017 5/9/2017 7/24/2017 All parameters monitored
VI-STC-50	Madam Carty, offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-51	Great Pond Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-52	Great Pond Bay Class B		STC-13A Great Pond Bay	<b>STC-13A</b>  12/8/2015 1/26/2016 3/22/2016 6/20/2016 9/26/2016 12/14/2016 2/14/2017 5/9/2017

				7/24/2017 All parameters monitored
VI-STC-53	Great Pond Bay subwatershed , offshore Class B		STC-OFF13 SE-4	<b>STC-OFF13</b> FY16-17 Not monitored
VI-STC-54	Leprey Valley Backreef Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-55	Leprey Valley subwatershed , offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-56	Bugby Hole Backreef Class B		STC-14A Halfpenny Bay - Manchenil, STC-14B Halfpenny Backreef, VI931289, Halfpenny	<b>STC-14A and STC-14B</b>  12/8/2015 1/26/2016 3/22/2016 6/20/2016 9/26/2016 12/14/2016 2/14/2017 5/9/2017 7/24/2017  All parameters monitored  <b>VI931289</b> --Enterococci/Turbidity monitored weekly
VI-STC-57	Bugby Hole subwatershed , offshore Class B		There are currently no monitoring stations within this assessment	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.

			unit.	
VI-STC-58	Southeast St. Croix HUC14, offshore Class B		STC-OFF2 SE-1, STC-OFF10 SE-3	<b>STC-OFF2</b> FY16-17 Not monitored  <b>STC-OFF10</b> FY16-17 Not monitored
VI-STC-59	Canegarden Bay Class B		STC-15 Canegarden Bay (gut), STC-15A Canegarden Bay	<b>STC-15 &amp; 15A</b>  12/8/2015 1/25/2016 3/22/2016 6/20/2016 9/26/2016 12/14/2016 2/14/2017 5/9/2017 7/24/2017  All parameters monitored
VI-STC-60	Canegarden Bay, offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-61	Hess Oil Virgin Islands Harbor Class C		STC-16 HOVENSA East Turning Basin, NW Corner, STC-17 HOVENSA West Turning Basin, NW Corner	<b>STC-16</b>  12/8/2015 1/25/2016 3/22/2016 6/20/2016 9/26/2016 12/14/2016 2/14/2017 5/9/2017 7/24/2017 All parameters monitored

				<b>STC-17</b>  12/8/2015 1/25/2016 3/22/2016 6/20/2016 9/26/2016 12/14/2016 2/14/2017 5/9/2017 7/24/2017  All parameters monitored
VI-STC-62	Limetree Bay Class B		<b>STC-18</b> Limetree Bay Container Port	<b>STC-18</b>  12/8/2015 1/25/2016 3/22/2016 6/20/2016 9/26/2016 12/13/2016 2/14/2017 5/9/2017 7/24/2017  All parameters monitored
VI-STC-63	Martin- Marietta Alumina Harbor Class C		<b>STC-19 Krause</b> Lagoon Channel, <b>STC-20 Alumina</b> Plant Dock	<b>STC-19</b>  12/8/2015 1/25/2016 3/22/2016 6/20/2016 9/26/2016 12/13/2016 2/16/2017 5/9/2017 7/24/2017

				<p>All parameters monitored</p> <p><b>STC- 20</b></p> <p>12/8/2015 1/25/2016 3/22/2016 6/20/2016 9/26/2016 12/13/2016 2/16/2017 5/9/2017 7/24/2017</p> <p>All parameters monitored</p>
VI-STC-64	Manning Bay/Estate Anguilla Beach Class B		STC-23 Public Dump	<p><b>STC-23</b></p> <p>12/8/2015 1/25/2016 3/22/2016 6/21/2016 9/26/2016 12/13/2016 2/16/2017 5/9/2017 7/24/2017</p> <p>All parameters monitored</p>
VI-STC-65	Hovensha, west Class B		STC-21 Spoils Island (Ruth Island)	<p><b>STC-21</b></p> <p>12/8/2015 1/25/2016 3/22/2016 6/21/2016 9/26/2016 12/13/2016 2/16/2017 5/9/2017 7/24/2017</p>



				All parameters monitored
VI-STC-66	Hovensa subwatershed , offshore Class B		STC-22A Treatment Plant (POTW) Outfall	<b>STC-22A</b> 12/8/2015 1/25/2016 3/22/2016 6/21/2016 9/26/2016 12/13/2016 2/16/2017 5/9/2017 7/24/2017  All parameters monitored
VI-STC-67	Southports St. Croix HUC14, offshore Class B		STC-OFF9 SW-3	<b>STC-OFF9</b> FY16-17 Not monitored
VI-STC-68	Bethlehem subwatershed , inshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-69	Bethlehem subwatershed , offshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-70	Airport, nearshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-71	Airport, offshore Class B		STC-OFF6 South-2	<b>STC-OFF6</b> FY16-17 Not monitored
VI-STC-72	Airport St.		There are	Currently no monitoring

	Croix HUC14, offshore Class B		currently no monitoring stations within this assessment unit.	stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-73	Diamond, nearshore Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-74	Enfield Green Beach/VIRIL Outfall Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-75	Diamond subwatershed , offshore Class B		STC-24B Rum Plant (VI Rum) Outfall	<b>STC-24B</b>  12/8/2015 1/25/2016 3/22/2016 6/21/2016 9/26/2016 12/13/2016 2/16/2017 5/9/2017 7/24/2017  All parameters monitored
VI-STC-76	Carlton Beach Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-77	Long Point Bay Class B		STC-25 Long Point	<b>STC-25</b>  12/8/2015 1/25/2016 3/22/2016 6/21/2016

				9/26/2016 12/13/2016 2/16/2017 5/9/2017 7/24/2017  All parameters monitored
VI-STC-78	Long Point Bay subwatershed , offshore Class B		STC-OFF12 SW-4	<b>STC-OFF12</b> FY16-17 Not monitored
VI-STC-79	Good Hope Beach Class B		STC-26 Good Hope Beach	<b>STC-26</b>  12/8/2015 1/25/2016 3/22/2016 6/21/2016 9/26/2016 12/13/2016 2/16/2017 5/9/2017 7/24/2017  All parameters monitored
VI-STC-80	Sandy Point, nearshore south Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-81	Sandy Point, offshore south Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-82	Sandy Point, nearshore west Class B		STC-27 Sandy Point Public Beach, VI896490	<b>STC-27</b>  12/8/2015 1/25/2016

			Dorsch Bay, VI907985 Stony Ground	3/23/2016 6/21/2016 9/26/2016 12/13/2016 2/16/2017 5/10/2017 7/25/2017  All parameters monitored  <b>VI896490</b> --Enterococci/Turbidity monitored weekly <b>VI907985</b> --Enterococci/Turbidity monitored weekly
VI-STC-83	Sandy Point, offshore west Class B		There are currently no monitoring stations within this assessment unit.	Currently no monitoring stations within this assessment unit and therefore, no monitoring was conducted.
VI-STC-84	Southwest St. Croix HUC14, offshore Class B		STC-OFF3 SW- 1	<b>STC-OFF3</b> FY16-17 Not monitored

### C. Monitoring Strategy

The Water Quality Management Program last revised the Multi-Year Monitoring Strategy in FY2015, and a revised MYMS is being developed for FY2019; the new information will be included in the next Integrated Report. The current monitoring strategy addresses the integrated five categories and the assessment units delineated by Battelle (2003). The monitoring strategy for the next 5-years is included below.

#### FY 2018

##### Water Pollution Control: Ambient Monitoring Subprogram

- Conduct routine Ambient water quality monitoring (In-kind/DPNR) and biocriteria water quality monitoring
- Enter and upload water quality data to WQX\_Web/StoRet
- *Review all programmatic SOPs/QAPPs, (revise if necessary)*

- *Revise monitoring network and/or assessment units to better assess the overall quality of the Territory's waters, identify problem areas and determine changes in water quality over time*

#### **Water Pollution Control: Beach Monitoring Subprogram**

- Continue VI BEACH Monitoring
- Enter and upload water quality data to WQX\_Web/StoRet
- *Review all programmatic SOPs/QAPPs, (revise if necessary)*
- *Revise beach length and coordinates as reported on BEACON*
- *Review the beaches monitored under the subprogram and their associated tiers*

#### **Water Pollution Control: TMDL Development Subprogram**

- Continue to collect monthly DMR and CSI data
- Enter and upload TPDES data to ICIS
- TMDL development for high priority waterbodies
  - *including specific data development if necessary*
- *Review all programmatic SOPs/QAPPs, (revise if necessary)*

#### **Water Quality Management: General**

- Submit the 2018 Integrated Report
- Continue working towards the 2018 Water Quality Standards Triennial Review
  - Put nutrient criteria thresholds as draft standards out to public comment
- Finalize 2018 WQS Triennial Review
- *Finalize biocriteria regulations (as component of 2018 WQS Triennial Review)*
- *Finalize numeric nutrient criteria regulations (as component of 2018 WQS Triennial Review)*
- *Finalize software / data model for storing all data collected*
- *Develop a supplemental nutrient monitoring protocol for macro-algae and start pilot project*
- *Establish a formal programmatic evaluation and general support and infrastructure procedure*
- *Perform data analysis to determine relationships between indicators and ancillary data and develop a more appropriate assessment methodology*
- *Reference biennial data analysis to identify technical data needs*
- *Review Multi-Year Monitoring Strategy document*

### **FY2019**

#### **Water Pollution Control: Ambient Monitoring Subprogram**

- *Conduct routine Ambient water quality monitoring (including nutrient) on a bi-monthly basis including:*
  - *supplemental monitoring of additional sites more aligned with priority watersheds and sensitive receptors.*
- Enter and upload water quality data to WQX\_Web/StoRet
- *Review all programmatic SOPs/QAPPs, (revise if necessary)*

- *Revise monitoring network and/or assessment units to better assess the overall quality of the Territory's waters, identify problem areas and determine changes in water quality over time*
- *Investigate Biological Condition Gradients (BCGs) for use in the Territory*

#### **Water Pollution Control: Beach Monitoring Subprogram**

- *Continue VI BEACH Monitoring*
- *Enter and upload water quality data to WQX\_Web/StoRet*
- *Review all programmatic SOPs/QAPPs, (revise if necessary)*
- *Revise beach length and coordinates as reported on BEACON*
- *Review the beaches monitored under the subprogram and their associated tiers*

#### **Water Pollution Control: TMDL Development Subprogram**

- *Continue to collect monthly DMR and CSI data*
- *Enter and upload TPDES data to ICIS*
- *TMDL development for high priority waterbodies*
  - *including specific data development if necessary*
- *Review all programmatic SOPs/QAPPs, (revise if necessary)*

#### **Water Quality Management: General**

- *Initiate the 2021 Water Quality Standards Triennial Review, including:*
  - *baseline data gathering, literature review, field assessment, and data analysis for the eventual adoption of water quantity criteria for inland waters*
  - *baseline data gathering, literature review, field assessment, and data analysis for the eventual adoption of additional and/or revised numeric water quality criteria for inland waters*
  - *a review of the turbidity criteria for Class A and I waters*
  - *a review of the pH criteria for Class A, B & C waters*
  - *a review of the clarity criteria for Class A waters*
  - *a delineation of the turbidity criteria exempted Class B waters*
  - *an investigation into numeric translation of narrative general water quality criteria*
  - *a review of the protectiveness of TN and TP criteria*
  - *a review of the language pertaining to mixing zones and site-specific criteria section*
  - *a revision of the established Assessment Methodology documents*
  - *a literature review of new pollutants of concern for eventual consideration to adopt in WQS, including (potentially): microplastics, pesticides, and oxybenzone and octinoxate.*
- *Finalize software / data model for storing all data collected*
- *Begin data entry into agreed upon storage system of both current and archival data for all monitoring programs*
- *Develop a supplemental nutrient monitoring protocol for macro-algae and start pilot project*
- *Establish a formal programmatic evaluation and general support and infrastructure procedure*
- *Perform data analysis to determine relationships between indicators and ancillary data and develop a more appropriate assessment methodology*

- *Reference biennial data analysis to identify technical data needs*

## **FY2020**

### **Water Pollution Control: Ambient Monitoring Subprogram**

- *Conduct routine Ambient water quality monitoring*
- *Enter and upload water quality data to WQX\_Web/StoRet*
- *Investigate and implement Biological Condition Gradients (BCGs) for use in the Territory*
- *Review all programmatic SOPs/QAPPs (revise if necessary)*

### **Water Pollution Control: Beach Monitoring Subprogram**

- *Continue VI BEACH Monitoring*
- *Enter and upload water quality data to WQX\_Web/StoRet*
- *Review all programmatic SOPs/QAPPs (revise if necessary)*

### **Water Pollution Control: TMDL Development Subprogram**

- *Continue to collect monthly DMR and CSI data*
- *Enter and upload TPDES data to ICIS*
- *TMDL development for high priority waterbodies*
  - *including specific data development if necessary*
- *Incorporate data developed for TMDL waterbodies into appropriate modeling software*
- *Incorporate TMDL effectiveness monitoring into appropriate digital database*

### **Water Quality Management: General**

- *Prepare the 2020 Integrated Report*
- *Initiate the Inland Water Quality Monitoring Program*
- *Conduct supplemental projects (subject to funding) including a(n):*
  - *USVI Marina assessment project*
  - *Gut inventory project*
- *Review and, if necessary, update the MYMS*

## **FY2021**

### **Water Pollution Control: Ambient Monitoring Subprogram**

- *Conduct routine Ambient water quality monitoring (contractors or DPNR)*
- *Enter and upload water quality data to WQX\_Web/StoRet*

### **Water Pollution Control: Beach Monitoring Subprogram**

- *Continue VI BEACH Monitoring (contractors or DPNR)*
- *Enter and upload water quality data to WQX\_Web/StoRet*

### **Water Pollution Control: TMDL Development Subprogram**

- *Continue to collect monthly DMR and CSI data*
- *Enter and upload TPDES data to ICIS*

- *TMDL development for high priority waterbodies*
  - *including specific data development if necessary*
- *Incorporate data developed for TMDL waterbodies into appropriate modeling software*
- *Develop monitoring plans for TMDLs undergoing implementation*
- *Incorporate TMDL effectiveness monitoring into appropriate digital database*

#### **Water Quality Management: General**

- *Finalize the 2021 WQS Triennial Review*
- *Pursue grants*
- *Potentially continue the Inland Water Quality Monitoring Program*
- *Conduct or continue supplemental projects (subject to funding) including a(n):*
  - *USVI Marina assessment project*
  - *Unpaved and eroding roads mapping project*
  - *Sewer system mapping project*
  - *Gut inventory project*
  - *Wetland/inland water delineation project*
  - *Water modeling training course*

### **FY2022**

#### **Water Pollution Control: Ambient Monitoring Subprogram**

- *Conduct routine Ambient water quality monitoring (contractors or DPNR)*
- *Enter and upload water quality data to WQX\_Web/StoRet*
- *Review all programmatic SOPs/QAPPs (revise if necessary)*

#### **Water Pollution Control: Beach Monitoring Subprogram**

- *Continue VI BEACH Monitoring (contractors or DPNR)*
- *Enter and upload water quality data to WQX\_Web/StoRet*
- *Review all programmatic SOPs/QAPPs (revise if necessary)*

#### **Water Pollution Control: TMDL Development Subprogram**

- *Continue to collect monthly DMR and CSI data*
- *Enter and upload TPDES data to ICIS*
- *TMDL development for high priority waterbodies*
- *Incorporate data developed for TMDL waterbodies into appropriate modeling software*
- *Develop monitoring plans for TMDLs undergoing implementation*
- *Incorporate TMDL effectiveness monitoring into appropriate digital database*

#### **Water Quality Management: General**

- *Prepare the 2022 Integrated Report*
- *Pursue grants*
- *Potentially continue or expand the Inland Water Quality Monitoring Program*
- *Review and, if necessary, update the MYMS*



## **FY2023**

### **Water Pollution Control: Ambient Monitoring Subprogram**

- *Conduct routine Ambient water quality monitoring (contractors or DPNR)*
- *Enter and upload water quality data to WQX\_Web/StoRet*
- *Review all programmatic SOPs/QAPPs (revise if necessary)*

### **Water Pollution Control: Beach Monitoring Subprogram**

- *Continue VI BEACH Monitoring (contractors or DPNR)*
- *Enter and upload water quality data to WQX\_Web/StoRet*
- *Review all programmatic SOPs/QAPPs (revise if necessary)*

### **Water Pollution Control: TMDL Development Subprogram**

- *Continue to collect monthly DMR and CSI data*
- *Enter and upload TPDES data to ICIS*
- *TMDL development for high priority waterbodies*
- *Incorporate data developed for TMDL waterbodies into appropriate modeling software*
- *Develop monitoring plans for TMDLs undergoing implementation*
- *Incorporate TMDL effectiveness monitoring into appropriate digital database*

### **Water Quality Management: General**

- *Pursue grants*
- *Potentially continue and expand the Inland Water Quality Monitoring Program*
- *Review and, if necessary, update the MYMS*

## **FY2024**

### **Water Pollution Control: Ambient Monitoring Subprogram**

- *Conduct routine Ambient water quality monitoring (contractors or DPNR)*
- *Enter and upload water quality data to WQX\_Web/StoRet*
- *Review all programmatic SOPs/QAPPs (revise if necessary)*

### **Water Pollution Control: Beach Monitoring Subprogram**

- *Continue VI BEACH Monitoring (contractors or DPNR)*
- *Enter and upload water quality data to WQX\_Web/StoRet*
- *Review all programmatic SOPs/QAPPs (revise if necessary)*

### **Water Pollution Control: TMDL Development Subprogram**

- *Continue to collect monthly DMR and CSI data*
- *Enter and upload TPDES data to ICIS*
- *TMDL development for high priority waterbodies*
- *Incorporate data developed for TMDL waterbodies into appropriate modeling software*

- *Develop monitoring plans for TMDLs undergoing implementation*
- *Incorporate TMDL effectiveness monitoring into appropriate digital database*

#### **Water Quality Management: General**

- *Prepare the Integrated Report*
- *Finalize the 2024 WQS Triennial Review*
- *Pursue grants*
- *Potentially continue and expand the Inland Water Quality Monitoring Program*
- *Review and, if necessary, update the MYMS*

### **FY2025**

#### **Water Pollution Control: Ambient Monitoring Subprogram**

- *Conduct routine Ambient water quality monitoring (contractors or DPNR)*
- *Enter and upload water quality data to WQX\_Web/StoRet*
- *Review all programmatic SOPs/QAPPs (revise if necessary)*

#### **Water Pollution Control: Beach Monitoring Subprogram**

- *Continue VI BEACH Monitoring (contractors or DPNR)*
- *Enter and upload water quality data to WQX\_Web/StoRet*
- *Review all programmatic SOPs/QAPPs (revise if necessary)*

#### **Water Pollution Control: TMDL Development Subprogram**

- *Continue to collect monthly DMR and CSI data*
- *Enter and upload TPDES data to ICIS*
- *TMDL development for high priority waterbodies*
- *Incorporate data developed for TMDL waterbodies into appropriate modeling software*
- *Develop monitoring plans for TMDLs undergoing implementation*
- *Incorporate TMDL effectiveness monitoring into appropriate digital database*

#### **Water Quality Management: General**

- *Pursue grants*
- *Potentially continue and expand the Inland Water Quality Monitoring Program*
- *Review and, if necessary, update the MYMS*

## Section 303(d) Waters

Section 303(d) of the Clean Water Act requires States and Territories to develop a list of impaired waters needing TMDLs every even-numbered calendar year. An impaired waterbody is one for which technology-based pollution controls are not stringent enough to attain or maintain compliance with applicable State and Territory water quality standards. In order for a water quality-limited waterbody to attain water quality standards, a TMDL must be developed and implemented specifically for that waterbody and pollutant(s) of concern. A TMDL is a quantitative assessment of the amount of pollution that a certain waterbody can assimilate while still meeting water quality standards.

On October 25, 2018, the Virgin Islands Department of Planning and Natural Resources released the 2018 303(d) List of Impaired Waterbodies for public comment. The final list consists of 80 assessment units listed for a variety of impairments. The 2018 303(d) List of Impaired Waterbodies is attached to this report as an Attachment.

## D. Estuary and Coastal Assessment

### 1. Designated Use Support Summary

Assessment of the Virgin Islands' coastal waters is presented in (estimated) square miles of assessment unit boundaries. Some 650 square miles are assessed in this report. A summary of use support assessments for coastal waters is shown in Table III.C.1. The mileage presented is based on Global Information Systems (GIS) approximations.

**Table III.C.1. Waterbodies, Segments, and Categories**

AU ID	AU Name	AU Size (sq. mi.)	Class	305(b) Category	Integrated Category	Impairment
VI-STC-01	Frederiksted, south	0.0451	B	Insufficient Information	3A	
VI-STC-02	Frederiksted Harbor	0.035	C	Not Supporting	5	Enterococcus, Turbidity
VI-STC-03	Lagrange subwatershed, offshore	0.375	B	Insufficient Information	3A	
VI-STC-04	Prosperity, nearshore	0.1118	B	Not Supporting	5	Enterococcus, Turbidity
VI-STC-05	Prosperity subwatershed, offshore	0.5129	B	Insufficient Information	3A	
VI-STC-06	Sprat Hall Beach	0.0609	B	Not Supporting	5	Enterococcus
VI-STC-07	Creque Dam/Butler Bay	0.529	B	Insufficient Information	3A	
VI-STC-08	Hams Bay	0.3144	B	Insufficient Information	3A	

AU ID	AU Name	AU Size (sq. mi.)	Class	305(b) Category	Integrated Category	Impairment
VI-STC-09	Davis Bay	0.0522	B	Insufficient Information	3A	
VI-STC-10	Hams Bluff	0.5506	B	Insufficient Information	3A	
VI-STC-11	Northwest St. Croix HUC14, offshore	33.302	B	Insufficient Information	3A	
VI-STC-12	Cane Bay	0.0613	B	Not Supporting	5	Dissolved Oxygen, Enterococcus, Phosphorous, Turbidity
VI-STC-13	Baron Bluff subwatershed	0.3498	B	Not Supporting	5	Dissolved Oxygen, Turbidity
VI-STC-14	Belvedere	0.0557	B	Insufficient Information	3A	
VI-STC-15	Northside subwatershed	0.6109	B	Insufficient Information	3A	
VI-STC-16	Salt River Lagoon, Marina	0.0194	B	TMDL Established	4A	Dissolved Oxygen
VI-STC-16	Salt River Lagoon, Marina	0.0194	B	Not Supporting	5	Enterococcus
VI-STC-17	Salt River Lagoon, Sugar Bay	0.3244	B	TMDL Established	4A	Dissolved Oxygen
VI-STC-18	Salt River Bay	0.3229	B	TMDL Established	4A	Dissolved Oxygen
VI-STC-18	Salt River Bay	0.3229	B	Not Supporting	5	Enterococcus, Turbidity
VI-STC-19	Judith Fancy	0.01	B	Insufficient Information	3A	
VI-STC-20	Salt River Bay subwatershed, west	0.2433	B	Insufficient Information	3A	
VI-STC-21	Salt River Bay subwatershed, east	0.8922	B	Insufficient Information	3A	
VI-STC-22	Northcentral St. Croix HUC14, offshore	23.61	B	Insufficient Information	3A	
VI-STC-23	St. Croix-By-the-Sea	0.0727	B	Not Supporting	5	pH, Turbidity
VI-STC-23	St. Croix-By-the-Sea	0.0727	B	TMDL Established	4A	Dissolved Oxygen (TMDL established for Biological Oxygen Demand & Sediment Oxygen Demand), Phosphorus, Fecal Coliform, Total Suspended Solids, Enterococcus

<b>AU ID</b>	<b>AU Name</b>	<b>AU Size (sq. mi.)</b>	<b>Class</b>	<b>305(b) Category</b>	<b>Integrated Category</b>	<b>Impairment</b>
						<b>Bacteria</b>
<b>VI-STC-24</b>	<b>Long Reef Backreef, west</b>	<b>0.1153</b>	<b>C</b>	<b>TMDL Established</b>	<b>4A</b>	<b>Dissolved Oxygen (TMDL established for Biological Oxygen Demand &amp; Sediment Oxygen Demand), Phosphorus, Fecal Coliform, Total Suspended Solids, Enterococcus Bacteria</b>
<b>VI-STC-25</b>	<b>Princess subwatershed, offshore</b>	<b>0.4343</b>	<b>B</b>	<b>TMDL Established</b>	<b>4A</b>	<b>Dissolved Oxygen (TMDL established for Biological Oxygen Demand &amp; Sediment Oxygen Demand), Phosphorus, Fecal Coliform, Total Suspended Solids, Enterococcus Bacteria</b>
<b>VI-STC-26</b>	<b>Christiansted Harbor</b>	<b>0.9601</b>	<b>C</b>	<b>TMDL Established</b>	<b>4A</b>	<b>Dissolved Oxygen (TMDL established for Biological Oxygen Demand &amp; Sediment Oxygen Demand), Phosphorus, Fecal Coliform, Total Suspended Solids, Enterococcus Bacteria</b>
<b>VI-STC-26</b>	<b>Christiansted Harbor</b>	<b>0.9601</b>	<b>C</b>	<b>Not Supporting</b>	<b>5</b>	<b>pH, Turbidity</b>
<b>VI-STC-27</b>	<b>Long Reef Forereef, east</b>	<b>0.3149</b>	<b>B</b>	<b>TMDL Established</b>	<b>4A</b>	<b>Dissolved Oxygen (TMDL established for Biological Oxygen Demand &amp; Sediment Oxygen Demand), Phosphorus, Fecal Coliform, Total Suspended Solids, Enterococcus Bacteria</b>
<b>VI-STC-28</b>	<b>Altona Lagoon</b>	<b>0.2337</b>	<b>B</b>	<b>Insufficient Information</b>	<b>3A</b>	

AU ID	AU Name	AU Size (sq. mi.)	Class	305(b) Category	Integrated Category	Impairment
VI-STC-29	Christiansted Harbor, east	0.1089	C	Not Supporting	5	pH, Turbidity
VI-STC-30	Beauregard Bay	0.2145	B	Not Supporting	5	Enterococcus, Phosphorous, pH, Turbidity
VI-STC-31	Buccaneer Beach	0.0166	B	Not Supporting	5	Dissolved Oxygen, Enterococcus
VI-STC-32	Altona Lagoon subwatershed, offshore	0.6812	B	Insufficient Information	3A	
VI-STC-33	Punnett Bay	0.0576	B	Not Supporting	5	Enterococcus, Turbidity
VI-STC-34	Punnett Point, east	0.0223	B	Insufficient Information	3A	
VI-STC-35	Tamarind Reef Lagoon (Southgate Lagoon)	0.0205	B	Partially Supporting	2	
VI-STC-36	Green Cay Beach	0.1017	B	Not Supporting	5	Enterococcus, Turbidity
VI-STC-37	Southgate subwatershed, offshore	2.2219	B	Not Supporting	5	Dissolved Oxygen, Enterococcus, Turbidity
VI-STC-38	Solitude Backreef	0.9681	B	Insufficient Information	3A	
VI-STC-39	Teague Bay	0.1773	B	Not Supporting	5	pH, Turbidity
VI-STC-40	Teague Bay Backreef	0.8547	B	Not Supporting	5	Enterococcus, pH, Turbidity
VI-STC-41	Buck Island Backreef	0.7675	A	Not Supporting	5	Temperature
VI-STC-42	Buck Island Forereef	3.3497	A	Insufficient Information	3A	
VI-STC-43	Solitude and Teague Bay subwatersheds, offshore	18.822	B	Insufficient Information	3A	
VI-STC-44	Northeast St. Croix HUC14, offshore.	36.088	B	Insufficient Information	3A	
VI-STC-45	Isaac Bay	0.0853	B	Insufficient Information	3A	
VI-STC-46	Grapetree Bay	0.0425	B	Fully Supporting	1	
VI-STC-47	Turner Hole Backreef	0.2772	B	Not Supporting	5	Enterococcus, Turbidity
VI-STC-48	Turner Hole subwatershed, offshore	16.949	B	Insufficient Information	3A	

AU ID	AU Name	AU Size (sq. mi.)	Class	305(b) Category	Integrated Category	Impairment
VI-STC-49	Madam Carty Backreef	0.464	B	Fully Supporting	1	
VI-STC-50	Madam Carty, offshore	3.5161	B	Insufficient Information	3A	
VI-STC-51	Great Pond	0.1578	B	Insufficient Information	3A	
VI-STC-52	Great Pond Bay	1.0184	B	Fully Supporting	1	
VI-STC-53	Great Pond Bay subwatershed, offshore	3.0288	B	Insufficient Information	3A	
VI-STC-54	Leprey Valley Backreef	0.3712	B	Insufficient Information	3A	
VI-STC-55	Leprey Valley subwatershed, offshore	2.8455	B	Insufficient Information	3A	
VI-STC-56	Bugby Hole Backreef	0.7042	B	Not Supporting	5	Enterococcus, pH, Turbidity
VI-STC-57	Bugby Hole subwatershed, offshore	3.9	B	Insufficient Information	3A	
VI-STC-58	Southeast St. Croix HUC14, offshore	24.146	B	Insufficient Information	3A	
VI-STC-59	Canegarden Bay	0.8542	B	Not Supporting	5	Dissolved Oxygen, Turbidity
VI-STC-60	Canegarden Bay, offshore	0.7933	B	Insufficient Information	3A	
VI-STC-61	Hess Oil Virgin Islands Harbor	0.671	C	Not Supporting	5	Enterococcus, Turbidity
VI-STC-62	Limetree Bay	0.7239	B	Not Supporting	5	Dissolved Oxygen
VI-STC-63	Martin-Marietta Alumina Harbor	0.3228	C	Not Supporting	5	Dissolved Oxygen
VI-STC-64	Manning Bay/Estate Anguilla Beach	0.0508	B	Not Supporting	5	Dissolved Oxygen
VI-STC-65	Hovensa, west	1.2865	B	Not Supporting	5	Dissolved Oxygen
VI-STC-66	Hovensa subwatershed, offshore	2.8305	B	Not Supporting	5	Temperature
VI-STC-67	Southports St. Croix HUC14, offshore	8.1966	B	Insufficient Information	3A	
VI-STC-68	Bethlehem subwatershed, inshore	0.2149	B	Insufficient Information	3A	

AU ID	AU Name	AU Size (sq. mi.)	Class	305(b) Category	Integrated Category	Impairment
VI-STC-69	Bethlehem subwatershed, offshore	0.3971	B	Insufficient Information	3A	
VI-STC-70	Airport, nearshore	2.1943	B	Insufficient Information	3A	
VI-STC-71	Airport, offshore	4.263	B	Insufficient Information	3A	
VI-STC-72	Airport St. Croix HUC14, offshore	4.1803	B	Insufficient Information	3A	
VI-STC-73	Diamond, nearshore	0.1699	B	Insufficient Information	3A	
VI-STC-74	Enfield Green Beach/VIRIL Outfall	0.1376	B	Insufficient Information	3A	
VI-STC-75	Diamond subwatershed, offshore	2.8479	B	Not Supporting	5	Dissolved Oxygen, Chronic Toxicity
VI-STC-76	Carlton Beach	0.2447	B	Insufficient Information	3A	
VI-STC-77	Long Point Bay	0.8376	B	Not Supporting	5	Dissolved Oxygen, Turbidity
VI-STC-78	Long Point Bay subwatershed, offshore	4.9231	B	Insufficient Information	3A	
VI-STC-79	Good Hope Beach	0.1876	B	Not Supporting	5	Dissolved Oxygen
VI-STC-80	Sandy Point, nearshore south	2.0121	B	Insufficient Information	3A	
VI-STC-81	Sandy Point, offshore south	7.4306	B	Insufficient Information	3A	
VI-STC-82	Sandy Point, nearshore west	0.1158	B	Not Supporting	5	Turbidity
VI-STC-83	Sandy Point, offshore west	0.4875	B	Insufficient Information	3A	
VI-STC-84	Southwest St. Croix HUC14, offshore	18.347	B	Insufficient Information	3A	
VI-STJ-01	Caneel Bay	0.2623	B	Not Supporting	5	Dissolved Oxygen, Turbidity
VI-STJ-02	Hawksnest Bay	0.2246	B	Not Supporting	5	Enterococcus, Turbidity
VI-STJ-03	Trunk Bay	0.0685	A	Not Supporting	5	Enterococcus
VI-STJ-04	Hawksnest Bay subwatershed, offshore	1.7287	B	Insufficient Information	3A	
VI-STJ-	Cinnamon Bay	0.1456	B	Not	5	Enterococcus



AU ID	AU Name	AU Size (sq. mi.)	Class	305(b) Category	Integrated Category	Impairment
05				Supporting		
VI-STJ-06	Maho Bay/Francis Bay	0.346	B	Fully Supporting	1	
VI-STJ-07	Maho Bay subwatershed, offshore	1.6071	B	Insufficient Information	3A	
VI-STJ-08	Mary Point	0.4831	B	Insufficient Information	3A	
VI-STJ-09	Leinster Bay	0.6627	B	Insufficient Information	3A	
VI-STJ-10	Minnebeck Bay	1.4876	B	Insufficient Information	3A	
VI-STJ-11	Newfound Bay	0.0765	B	Insufficient Information	3A	
VI-STJ-12	North St. John HUC14, offshore	23.719	B	Insufficient Information	3A	
VI-STJ-13	Coral Harbor	0.6965	B	Not Supporting	5	Dissolved Oxygen, Enterococcus, pH, Phosphorous, Turbidity
VI-STJ-14	Hurricane Hole	0.7689	B	Insufficient Information	3A	
VI-STJ-15	Round Bay	0.6015	B	Fully Supporting	1	
VI-STJ-16	Coral Bay	2.2337	B	Not Supporting	5	Enterococcus
VI-STJ-17	Salt Pond Bay	0.1978	B	Fully Supporting	1	
VI-STJ-18	Grootman Bay	0.1046	B	Insufficient Information	3A	
VI-STJ-19	Great Lameshur Bay	0.359	B	Not Supporting	5	pH, Phosphorus
VI-STJ-20	Southeast St. John HUC14, offshore	24.319	B	Insufficient Information	3A	
VI-STJ-21	Genti Bay, nearshore	0.0947	B	Fully Supporting	1	
VI-STJ-22	Genti Bay, offshore	0.769	B	Insufficient Information	3A	
VI-STJ-23	Fish Bay	0.2103	B	Not Supporting	5	Dissolved Oxygen, pH, Phosphorous, Turbidity
VI-STJ-24	Fish Bay subwatershed, offshore	0.1824	B	Insufficient Information	3A	
VI-STJ-25	Rendezvous Bay	0.4677	B	Not Supporting	5	Turbidity

AU ID	AU Name	AU Size (sq. mi.)	Class	305(b) Category	Integrated Category	Impairment
VI-STJ-26	Chocolate Hole	0.1004	B	Fully Supporting	1	
VI-STJ-27	Rendezvous Bay subwatershed, offshore	0.1863	B	Insufficient Information	3A	
VI-STJ-28	Great Cruz Bay	0.1396	B	TMDL Established	4A	Oil and Grease
VI-STJ-28	Great Cruz Bay	0.1396	B	Not Supporting	5	Enterococcus, pH, Turbidity
VI-STJ-29	Turner Bay/Enighed Pond	0.057	B	Fully Supporting	1	
VI-STJ-30	Cruz Bay	0.0674	B	Not Supporting	5	Enterococcus, pH, Phosphorous, Turbidity
VI-STJ-31	Great Cruz Bay watershed, offshore	0.5775	B	Not Supporting	5	Enterococcus, Turbidity
VI-STJ-32	Southwest St. John HUC14, offshore	10.142	B	Not Supporting	5	Turbidity
VI-STJ-33	Pillsbury Sound	6.9399	B	Insufficient Information	3A	
VI-STT-01	Botany Bay	0.1576	B	Not Supporting	5	Turbidity
VI-STT-02	Stumpy Bay	0.0597	B	Not Supporting	5	Turbidity
VI-STT-03	Botany Bay subwatershed, offshore	1.309	B	Insufficient Information	3A	
VI-STT-04	Santa Maria Bay	0.3617	B	Not Supporting	5	Turbidity
VI-STT-05	Caret Bay	0.0266	B	Not Supporting	5	Turbidity
VI-STT-06	Neltjeberg Bay	0.0562	B	Insufficient Information	3A	
VI-STT-07	Dorothea	0.0254	B	Not Supporting	5	Dissolved Oxygen, Turbidity
VI-STT-08	Hull Bay	0.2049	B	Not Supporting	5	Enterococcus, pH, Turbidity
VI-STT-09	Dorothea Bay subwatershed, offshore	0.7673	B	Insufficient Information	3A	
VI-STT-10	Magens Bay	1.6208	B	TMDL Established	4A	Fecal Coliform
VI-STT-10	Magens Bay	1.6208	B	Not Supporting	5	Enterococcus, pH, Turbidity
VI-STT-11	Northwest St. Thomas HUC14, offshore	55.088	B	Insufficient Information	3A	

AU ID	AU Name	AU Size (sq. mi.)	Class	305(b) Category	Integrated Category	Impairment
VI-STT-12	Lovenlund Bay	0.0228	B	Insufficient Information	3A	
VI-STT-13	Mandahl Bay (Marina)	0.0131	B	Not Supporting	5	Dissolved Oxygen, pH, Phosphorous, Turbidity
VI-STT-14	Tutu Bay	0.0414	B	Insufficient Information	3A	
VI-STT-15	Sunsi Bay	0.0152	B	Fully Supporting	1	
VI-STT-16	Spring Bay	0.0102	B	Fully Supporting	1	
VI-STT-17	Mandahl Bay subwatershed, offshore	1.1379	B	Not Supporting	5	Enterococcus, Turbidity
VI-STT-18	Water Bay	0.0845	B	Not Supporting	5	Enterococcus, pH
VI-STT-19	Smith Bay	0.1187	B	Not Supporting	5	Enterococcus, Turbidity
VI-STT-20	Smith Bay subwatershed, offshore	0.4103	B	Insufficient Information	3A	
VI-STT-21	St. John Bay	0.0411	B	Not Supporting	5	Enterococcus, Turbidity
VI-STT-22	Red Bay	0.0078	B	Not Supporting	5	Dissolved Oxygen, Enterococcus, Turbidity
VI-STT-23	Vessup Bay	0.0619	B	TMDL Established	4A	Fecal Coliform
VI-STT-23	Vessup Bay	0.0619	B	Not Supporting	5	Enterococcus, Turbidity
VI-STT-23	Vessup Bay	0.0619	B	TMDL Established	4A	Dissolved Oxygen (TMDL established for Biological Oxygen Demand)
VI-STT-24	Red Hook Bay	0.1772	B	TMDL Established	4A	Oil and Grease
VI-STT-24	Red Hook Bay	0.1772	B	TMDL Established	4A	Dissolved Oxygen (TMDL established for Biological Oxygen Demand)
VI-STT-24	Red Hook Bay	0.1772	B	Not Supporting	5	Enterococcus, Turbidity
VI-STT-25	Great Bay	0.5593	B	Not Supporting	5	Enterococcus, Turbidity
VI-STT-26	Red Hook Bay, offshore	0.4725	B	Fully Supporting	1	
VI-STT-27	St. James Islands, offshore	0.6691	B	Fully Supporting	1	
VI-STT-	Cowpet Bay	0.0757	B	Not	5	Enterococcus,

AU ID	AU Name	AU Size (sq. mi.)	Class	305(b) Category	Integrated Category	Impairment
28				Supporting		Turbidity
VI-STT-29	St. James Bay	1.2439	B	Insufficient Information	3A	
VI-STT-30A	Northeast St. Thomas HUC14, offshore north	42.927	B	Insufficient Information	3A	
VI-STT-30B	Northeast St. Thomas HUC14, offshore south	24.908	B	Insufficient Information	3A	
VI-STT-31	Nazareth Bay	0.1793	B	Not Supporting	5	Enterococcus, Turbidity
VI-STT-32	Jersey Bay, offshore	1.2925	B	Fully Supporting	1	
VI-STT-33	Benner Bay	0.4187	B	Insufficient Information	3A	
VI-STT-33	Benner Bay	0.4187	B	TMDL Established	4A	Dissolved Oxygen
VI-STT-33	Benner Bay	0.4187	B	TMDL Established	4A	Fecal Coliform
VI-STT-34	Benner Bay Lagoon Marina	0.0355	B	TMDL Established	4A	Fecal Coliform
VI-STT-34	Benner Bay Lagoon Marina	0.0355	B	Not Supporting	5	Enterococcus, Turbidity
VI-STT-35	Mangrove Lagoon	0.2931	B	TMDL Established	4A	Fecal Coliform
VI-STT-35	Mangrove Lagoon	0.2931	B	TMDL Established	4A	Dissolved Oxygen (BOD)
VI-STT-35	Mangrove Lagoon	0.2931	B	Not Supporting	5	Enterococcus, Temperature, Turbidity
VI-STT-36	Frenchman Bay subwatershed, east	0.3532	B	Not Supporting	5	Enterococcus, Phosphorus, Turbidity
VI-STT-37	Frenchman Bay	0.0195	B	Not Supporting	5	Enterococcus, Turbidity
VI-STT-38	Limetree Bay	0.0065	B	Not Supporting	5	Enterococcus, Turbidity
VI-STT-39	Morningstar Bay	0.0215	B	TMDL Established	4A	Dissolved Oxygen (TMDL established for Biological Oxygen Demand & Sediment Oxygen Demand), Enterococcus Bacteria, & Fecal Coliform
VI-STT-39	Morningstar Bay	0.0215	B	Not Supporting	5	Enterococcus, Turbidity

<b>AU ID</b>	<b>AU Name</b>	<b>AU Size (sq. mi.)</b>	<b>Class</b>	<b>305(b) Category</b>	<b>Integrated Category</b>	<b>Impairment</b>
<b>VI-STT-40</b>	<b>Pacquereau Bay</b>	<b>0.0453</b>	<b>B</b>	<b>TMDL Established</b>	<b>4A</b>	<b>Dissolved Oxygen (TMDL established for Biological Oxygen Demand &amp; Sediment Oxygen Demand), Enterococcus Bacteria, &amp; Fecal Coliform</b>
<b>VI-STT-40</b>	<b>Pacquereau Bay</b>	<b>0.0453</b>	<b>B</b>	<b>Not Supporting</b>	<b>5</b>	<b>Turbidity</b>
<b>VI-STT-41</b>	<b>Frenchman Bay subwatershed, offshore</b>	<b>2.9233</b>	<b>B</b>	<b>TMDL Established</b>	<b>4A</b>	<b>Dissolved Oxygen (TMDL established for Biological Oxygen Demand &amp; Sediment Oxygen Demand), Enterococcus Bacteria, &amp; Fecal Coliform</b>
<b>VI-STT-42</b>	<b>Southeast St. Thomas HUC14, offshore</b>	<b>50.939</b>	<b>B</b>	<b>Insufficient Information</b>	<b>3A</b>	
<b>VI-STT-43</b>	<b>St. Thomas Harbor, inner</b>	<b>0.7495</b>	<b>C</b>	<b>TMDL Established</b>	<b>4A</b>	<b>Dissolved Oxygen (TMDL established for Biological Oxygen Demand &amp; Sediment Oxygen Demand), Enterococcus Bacteria, &amp; Fecal Coliform</b>
<b>VI-STT-43</b>	<b>St. Thomas Harbor, inner</b>	<b>0.7495</b>	<b>C</b>	<b>Not Supporting</b>	<b>5</b>	<b>Turbidity</b>
<b>VI-STT-44</b>	<b>St. Thomas Harbor, outer</b>	<b>1.2128</b>	<b>B</b>	<b>TMDL Established</b>	<b>4A</b>	<b>Dissolved Oxygen (TMDL established for Biological Oxygen Demand &amp; Sediment Oxygen Demand), Enterococcus Bacteria, &amp; Fecal Coliform</b>
<b>VI-STT-45</b>	<b>Gregerie Channel</b>	<b>1.7072</b>	<b>B</b>	<b>TMDL Established</b>	<b>4A</b>	<b>Dissolved Oxygen (TMDL established for Biological Oxygen Demand &amp; Sediment Oxygen Demand), Enterococcus Bacteria, &amp; Fecal Coliform</b>
<b>VI-STT-45</b>	<b>Gregerie Channel</b>	<b>1.7072</b>	<b>B</b>	<b>Not Supporting</b>	<b>5</b>	<b>Turbidity</b>

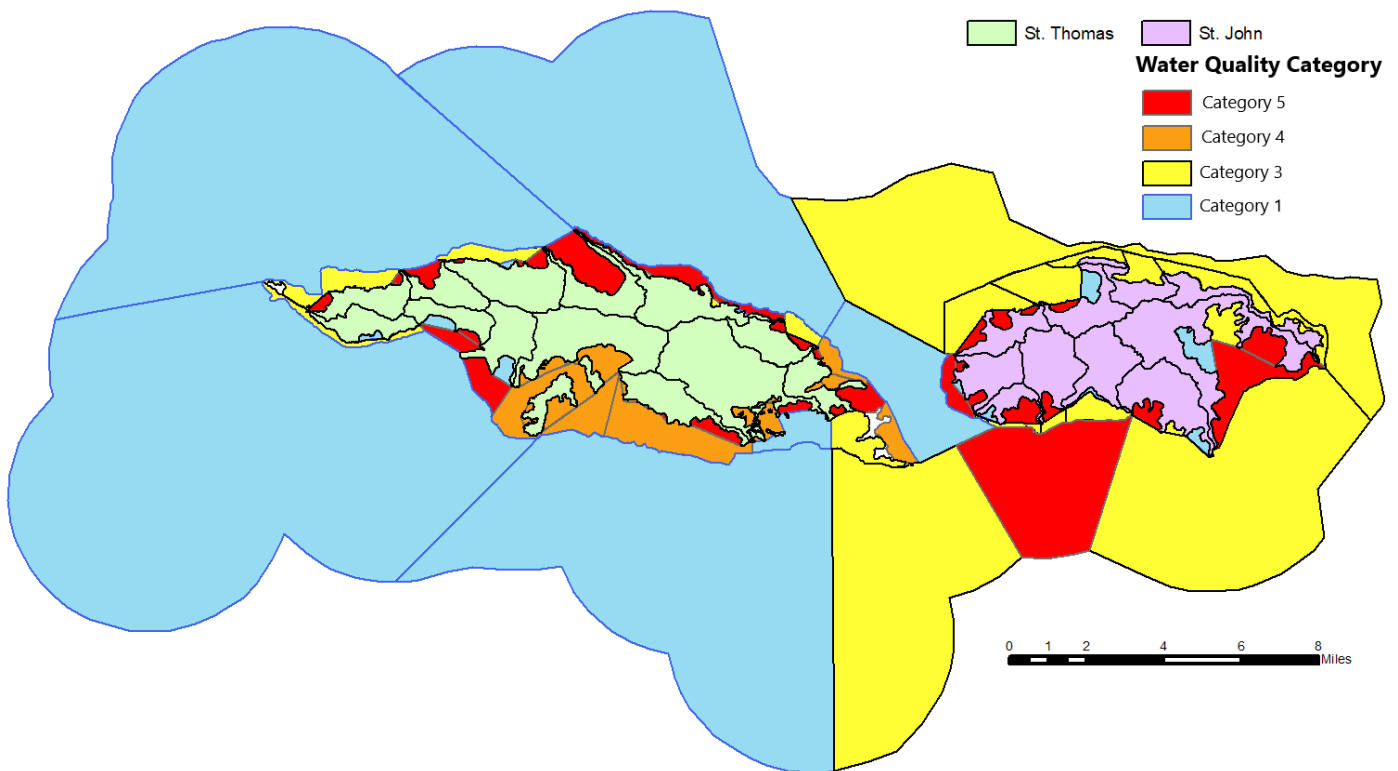
AU ID	AU Name	AU Size (sq. mi.)	Class	305(b) Category	Integrated Category	Impairment
VI-STT-46	Sprat Bay	0.3814	B	TMDL Established	4A	Dissolved Oxygen (TMDL established for Biological Oxygen Demand & Sediment Oxygen Demand), Enterococcus Bacteria, & Fecal Coliform
VI-STT-46	Sprat Bay	0.3814	B	Not Supporting	5	Enterococcus, Turbidity
VI-STT-47	Hassel Island at Haulover Cut to Regis Point	0.2074	C	TMDL Established	4A	Fecal Coliform
VI-STT-47	Hassel Island at Haulover Cut to Regis Point	0.2074	C	TMDL Established	4A	Oil and Grease
VI-STT-47	Hassel Island at Haulover Cut to Regis Point	0.2074	C	TMDL Established	4A	Dissolved Oxygen (TMDL established for Biological Oxygen Demand & Sediment Oxygen Demand), Enterococcus Bacteria, & Fecal Coliform
VI-STT-47	Hassel Island at Haulover Cut to Regis Point	0.2074	C	Not Supporting	5	Turbidity
VI-STT-48	Water Isle Hotel, Beach	0.0057	B	Insufficient Information	3A	
VI-STT-49	Druif Bay	0.0331	B	TMDL Established	4A	Dissolved Oxygen (TMDL established for Biological Oxygen Demand & Sediment Oxygen Demand), Enterococcus Bacteria, & Fecal Coliform
VI-STT-49	Druif Bay	0.0331	B	Not Supporting	5	Enterococcus, Turbidity
VI-STT-50	Flamingo	0.061	B	TMDL Established	4A	Dissolved Oxygen (TMDL established for Biological Oxygen Demand & Sediment Oxygen Demand), Enterococcus Bacteria, & Fecal Coliform
VI-STT-50	Flamingo	0.061	B	Not Supporting	5	Enterococcus, Turbidity

<b>AU ID</b>	<b>AU Name</b>	<b>AU Size (sq. mi.)</b>	<b>Class</b>	<b>305(b) Category</b>	<b>Integrated Category</b>	<b>Impairment</b>
<b>VI-STT-51</b>	<b>Krum Bay</b>	<b>0.0754</b>	<b>C</b>	<b>TMDL Established</b>	<b>4A</b>	<b>Dissolved Oxygen (TMDL established for Biological Oxygen Demand &amp; Sediment Oxygen Demand), Enterococcus Bacteria, &amp; Fecal Coliform</b>
<b>VI-STT-51</b>	<b>Krum Bay</b>	<b>0.0754</b>	<b>C</b>	<b>Not Supporting</b>	<b>5</b>	<b>Turbidity</b>
<b>VI-STT-52</b>	<b>Lindbergh Bay</b>	<b>0.2612</b>	<b>B</b>	<b>Not Supporting</b>	<b>5</b>	<b>Enterococcus, Turbidity</b>
<b>VI-STT-53</b>	<b>Cyril E. King Airport subwatershed, offshore</b>	<b>0.8499</b>	<b>B</b>	<b>Not Supporting</b>	<b>5</b>	<b>Dissolved Oxygen, Turbidity</b>
<b>VI-STT-54</b>	<b>Perseverance Bay, offshore</b>	<b>0.4734</b>	<b>B</b>	<b>Not Supporting</b>	<b>5</b>	<b>Enterococcus, Turbidity</b>
<b>VI-STT-55</b>	<b>Brewers Bay</b>	<b>0.1076</b>	<b>B</b>	<b>Not Supporting</b>	<b>5</b>	<b>Enterococcus, Turbidity</b>
<b>VI-STT-56</b>	<b>Perseverance Bay</b>	<b>0.2114</b>	<b>B</b>	<b>Fully Supporting</b>	<b>1</b>	
<b>VI-STT-57</b>	<b>Fortuna Bay</b>	<b>0.0827</b>	<b>B</b>	<b>Fully Supporting</b>	<b>1</b>	
<b>VI-STT-58</b>	<b>Fortuna Bay subwatershed, offshore</b>	<b>0.6553</b>	<b>B</b>	<b>Insufficient Information</b>	<b>3A</b>	
<b>VI-STT-59</b>	<b>Northwest St. Thomas HUC14, offshore</b>	<b>77.71</b>	<b>B</b>	<b>Insufficient Information</b>	<b>3A</b>	

## 2. Individual Use Support Summary

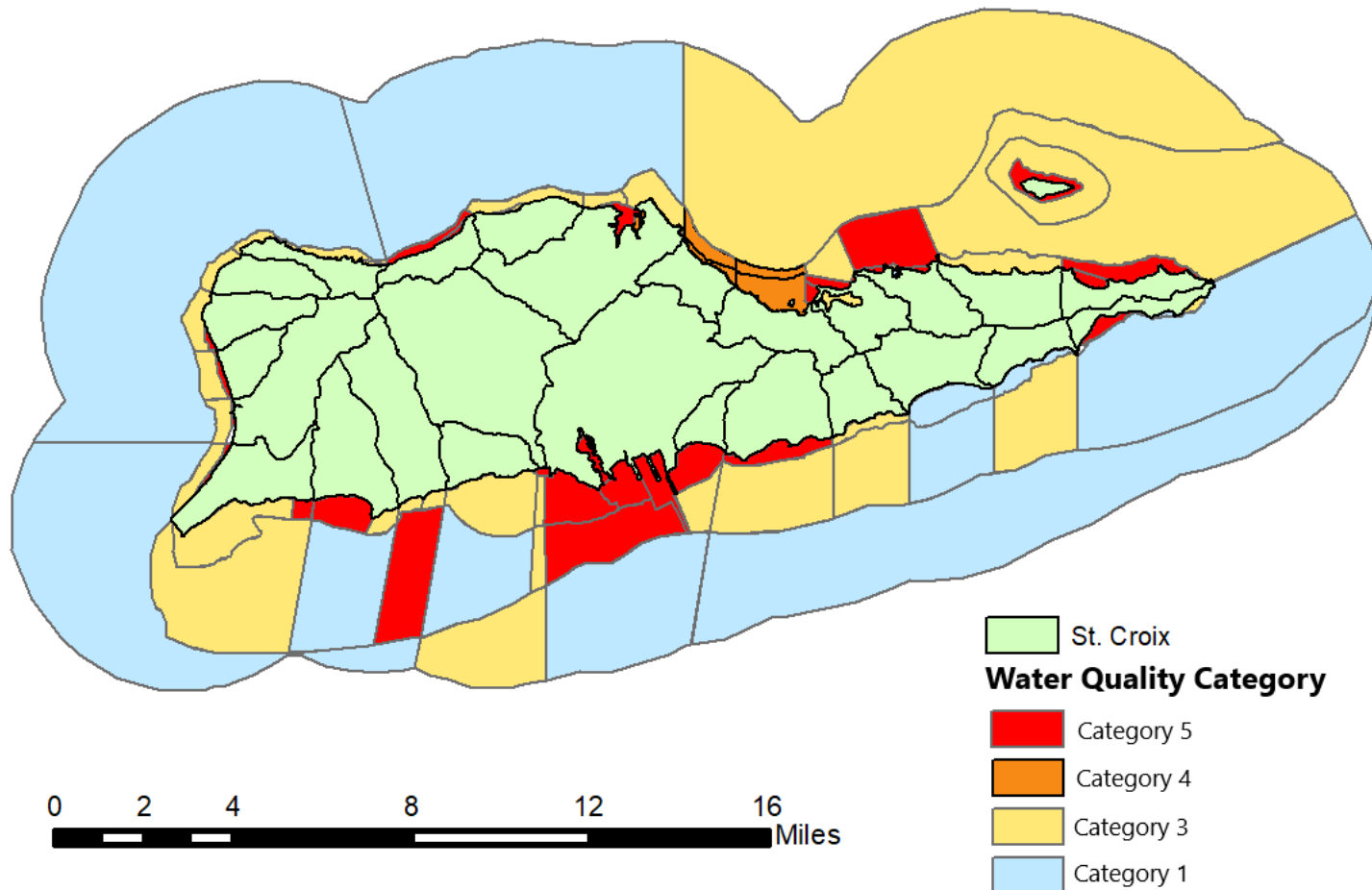
Assessment of the Virgin Islands' coastal waters is presented in (estimated) square miles of assessment unit boundaries. Some 650 square miles are assessed in this report.

**Figure III.C.2.a St. Thomas/St. John Integrated Categories**



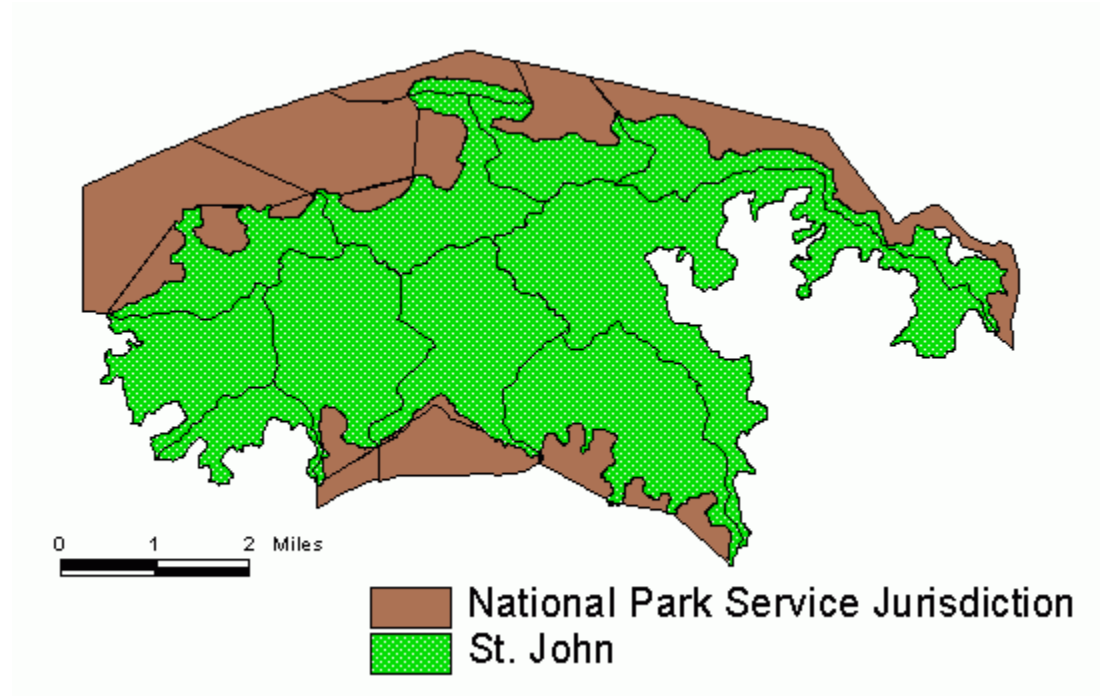


**Figure III.C.2.b St. Croix Integrated Categories**

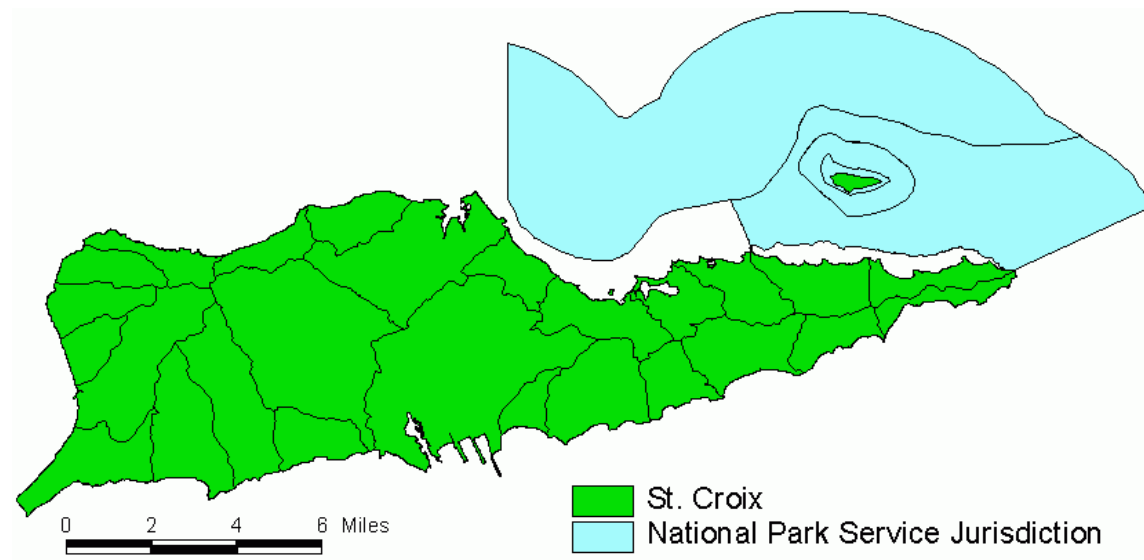


Several assessment units fall within the jurisdiction of the National Park Service (refer to Attachment 1: 2018 303(d) List of Impaired Waterbodies for greater detail). While the current assessment unit structure does not match perfectly with the waters under federal jurisdiction, Figures III.C.2.c and III.C.2.d illustrates these particular areas, as seen below.

**Figure III.C.2.c St. John Assessment Units Completely Under Federal Jurisdiction**



**Figure III.C.2.d St. Croix Assessment Units Completely Under Federal Jurisdiction**



### 3. Causes and Sources of Designated Use Impairment

#### *a) Eutrophication*

Eutrophication is rarely observed in the Virgin Islands because of tidal flushing and currents driven by the Caribbean current and steady Tradewind patterns.

#### *b) Case Studies*

The Unified Watershed Assessment includes a detailed summary of existing conditions for the 18 Coastal Zone Management Areas of Particular Concern. These APC reports contain water quality reports for each APC.

## E. Wetlands Assessment

### 1. Introduction

Prior to October 31, 1978, the US Army Corps of Engineers, as delegated by 404 of the Clean Water Act, performed protection of wetlands in the Virgin Islands. After that date, all coastal wetland protection was mandated to the Department of Planning and Natural Resources, Division of Coastal Zone Management. Guidelines are found in 12 V.I.C. §903(b)(8) (2013), which states that the Division's responsibility is *"to conserve ecologically significant resource areas for their contribution to marine productivity and value as wildlife habitats, and preserve the function and integrity of reefs, marine meadows, salt ponds, mangroves and other significant areas"*.

### 2. Classification of Wetlands

Classification of wetlands is based on the US Fish and Wildlife Wetland and Deepwater Habitat System (Cowardin *et al.*, 1979). Wetlands are grouped into four categories: tidal, seep, landlocked ponds, and spring tidal wetlands.

**Tidal ponds** or lagoons have narrow inlets connecting to the sea and have a salinity level that is slightly higher than seawater.

**Seep ponds** and **landlocked ponds** are not open to the sea and have fluctuating water and salinity levels depending on rainfall.

**Spring tidal wetlands** fringe bays, but standing water only occurs during spring tides, when strong onshore winds push water into the wetlands, or during times of heavy rainfall and consequent flooding.

The primary source of wetland impairment is non-point source pollution, construction intrusions, and sedimentation from upland run-off.

**Table III.D.1 Wetlands Classification<sup>12</sup>**

*[Classification of wetlands is based on the US Fish and Wildlife Wetland and Deepwater Habitat System (Cowardin et al., 1979).]*

<b>St. Croix</b>	<b>Classification</b>
Great Pond	Estuarine, Intertidal, Forested
Billy French Pond	Estuarine, Intertidal, Forested, Scrub-Shrub, Basin
West End Salt Pond	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub, Basin
Altoona Lagoon	Estuarine, Intertidal, Forested
Coakley Bay	Marine (Coastal), Intertidal, Unconsolidated sanded shore
Long Point Bay	Estuarine, Unconsolidated sanded shore, Intertidal
Mt. Fancy	Estuarine, Intertidal, Scrub- shrub, Unconsolidated shore, cobble-gravel
Robin Bay	Marine (Coastal), Intertidal, Unconsolidated cobble gravel
Southgate Pond	Estuarine, Intertidal, Scrub-shrub basin
Salt River/Sugar Bay	Estuarine, Intertidal, Unconsolidated sanded shore and bottom
Half Penny	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub
Krause Lagoon	Estuarine, Intertidal, Scrub-shrub,
Manchenil	Marine (Coastal), Intertidal, Unconsolidated sanded shore
<b>St Thomas</b>	<b>Classification</b>
Mandahl Bay	Estuarine, Intertidal, Unconsolidated bottom, Scrub-shrub
Fortuna Bay	Estuarine, Intertidal, Unconsolidated sanded shore, Forested,
Magens Bay	Marine (Coastal), Sub-tidal, Coral Reef,
Perseverance Bay	Estuarine, Intertidal, Forested, Unconsolidated sanded shore
Frenchman's Bay	Estuarine, Intertidal, Unconsolidated sanded shore
Little Conculus Bay	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub
Benner Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Mangrove Lagoon	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Smith Bay	Estuarine, Intertidal, Unconsolidated sanded shore
St. John Bay	Estuarine, Intertidal, Unconsolidated sanded shore
Great Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub

Cabrita Peninsula	Estuarine, Intertidal, Unconsolidated sanded shore
Cowpet Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Vessup Bay	Estuarine, Intertidal, Forested,
Bolongo Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Cabes Point	Estuarine, Intertidal, Scrub-shrub
Little St. James	Estuarine, Intertidal, Unconsolidated Sanded shore, Scrub-shrub
Salt Cay	Estuarine, Intertidal, Unconsolidated Mud,
Patricia Bay	Estuarine, Intertidal, Scrub-shrub
Muller Bay	Estuarine, Intertidal, Unconsolidated Sanded shore, Scrub-shrub
<b>Water Island</b>	<b>Classification</b>
Limestone Bay	Marine (Coastal), Intertidal, Unconsolidated Cobble gravel
Sprat Bay	Marine (Coastal), Intertidal, Unconsolidated sanded bottom
Sprat Point	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub
<b>St. John</b>	<b>Classification</b>
Brown Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Leinster Bay	Estuarine, Intertidal, Unconsolidated sanded shore
Kiddel Bay	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub
Little Lameshur	Estuarine, Intertidal, Scrub-shrub
Great Lameshur	Estuarine, Intertidal, Scrub-shrub
Fish Bay	Estuarine, Intertidal, Unconsolidated sanded shore,
Frank Bay	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub
Enighed Bay	Estuarine, Intertidal, Scrub-shrub
Francis Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Salt Pond Bay	Marine (Coastal), Subtidal, Coral Reef, 2, Estuarine, Intertidal, Scrub-shrub
Privateer Bay	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub
South side Pond	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub
Elk Bay	Estuarine, Intertidal, Unconsolidated, sanded shore, Scrub-shrub
Water Creek	Estuarine, Sub-tidal, Unconsolidated bottom

Otter Creek	Estuarine, Sub-tidal, Unconsolidated bottom
Princess Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Coral Bay	Estuarine, Intertidal, Forested, Unconsolidated cobble gravel, Forested
Chocolate Hole	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Peter Bay	Estuarine, Intertidal, Forested,
Turner Point	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Newfound Bay	Estuarine, Intertidal, Unconsolidated Sanded shore,
Reef Bay	Estuarine, Intertidal, Forested,
Calabash Boom	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore
Annaberg	Annaberg Estuarine,
Europa Bay	1. Estuarine, Intertidal, Scrub-shrub 2. Estuarine, Sub-tidal, Unconsolidated sanded bottom
Grooto Pain Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Hart Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Mary Point	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub

### 3. Wetlands Protection Activities

There is currently no Wetlands Management Program in the US Virgin Islands, though wetlands form a part of several programs and there are policies and legal mandates for management of wetlands.

Wetlands are mentioned in the priority goals and objectives identified in the 2018 USVI Coral Reef Management Program, so some focus from the DPNR Division of CZM is increasing. Two of the four priority sites (St. Thomas East End Reserve and St. Croix East End Marine Park) include large areas of wetlands, and CZM, including its St. Croix East End Marine Park (EEMP) Program, has been including these wetland areas more and more in watershed management plans.

However, the absence of policies and guidelines for wetlands management inhibit the development or integration of relevant programs. Even with policies to increase protections for wetlands approved by the Coastal Zone Management Commission in 2006, rules and regulations need to be promulgated and adopted within the coastal zone management program. Further, the single attempt to develop a wetlands conservation plan (Platenberg, 2006) focused on one district, and has not been approved or implemented. Lastly, there is no institutional arrangement that supports information sharing and collaborative programming, both necessary to ensure the development of synergies between the various programs.

There is no clear picture of the current state of wetlands, particularly in terms of the environmental quality, species diversity and ecological integrity. That information gap results primarily from the absence of monitoring programs for wetlands or associated resources. The most extensive

information is generated by resource assessments (e.g. survey of water birds or survey of salt ponds) that tend to be island specific and decades apart. Researchers from the University of the Virgin Islands also conduct occasional site-specific assessments.

## **F. Public Health/Aquatic Life Concerns**

### **Pollution-caused fish kills, *ciguatera* or other abnormalities**

The Department of Planning and Natural Resources keeps logs of fish kill incidents within the Territory when notified. For this reporting cycle, there was one reporting to DPNR of a Fish Kill, on August 17, 2017, caused by a discharge of raw sewage from a broken sewer force main adjacent to a freshwater pond. Approximately 240 fish were reported killed. The VI Waste Management Authority were required to fix and address the issues through enforcement action.

### **Restrictions on swimming areas**

No sampling related to natural disasters (e.g. hurricanes or storms) was conducted this cycle. There were, however, the following natural disasters during this reporting cycle:

#### **FY16**

No episodic monitoring conducted

#### **FY17**

*Hurricane Irma:*

September 6, 2017 - Conducted Beach/Coastal Assessments

*Hurricane Maria:*

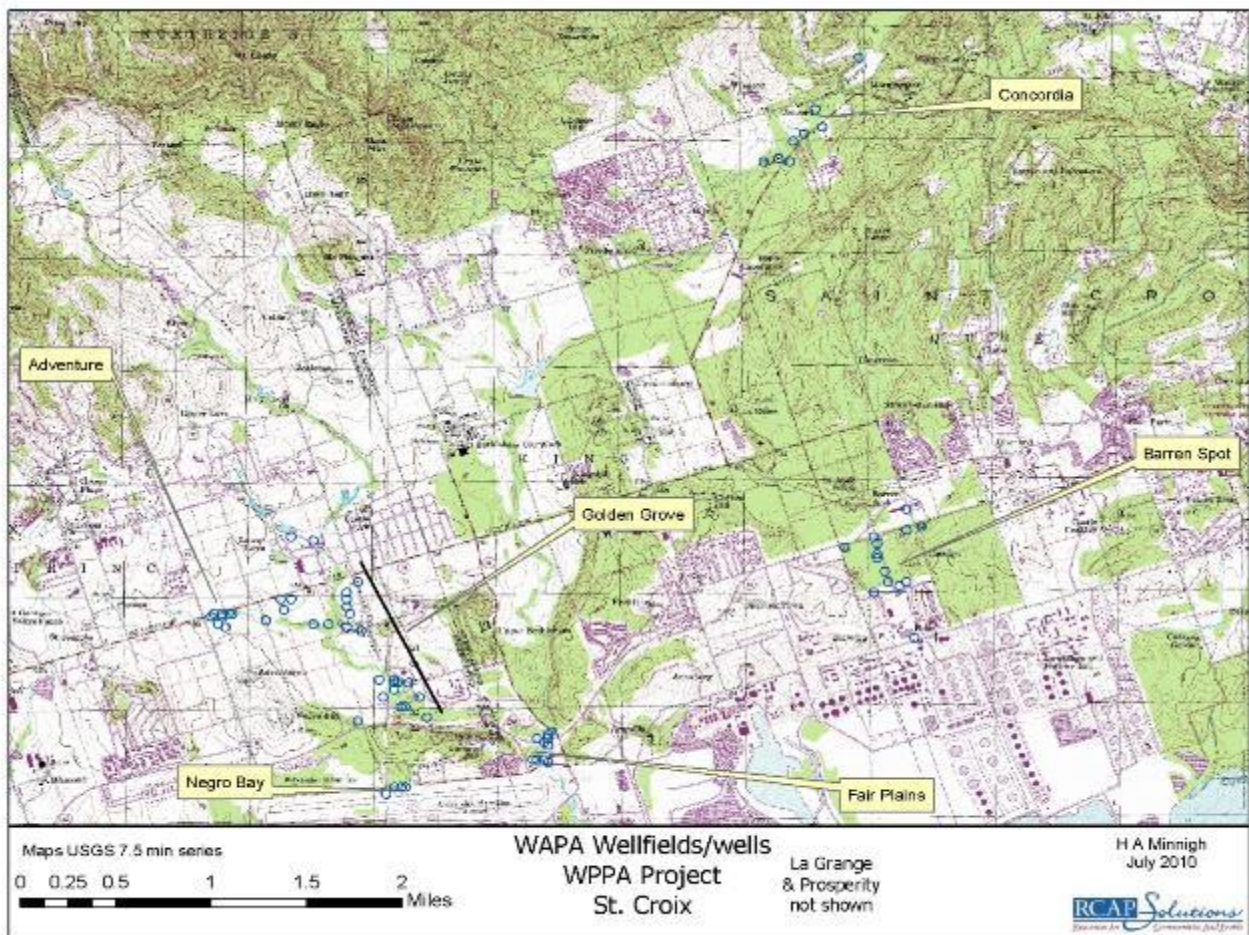
September 19, 2017- Conducted Beach/Coastal Assessments (no conditional sampling done until FY18)

The BEACH program issues notices on a weekly basis for territorial beaches that are being monitored. Advisories are issued following discovery of enterococci impairments.

## IV. GROUNDWATER ASSESSMENT

### A. Virgin Islands Water and Power Authority (WAPA)

The "major" water supplier in the VI is the Virgin Islands Water and Power Authority (WAPA). Ground water has the potential to contribute up to 30% (up to about 1 million gallons per day (MGD)) of the WAPA potable water supply on the island of St. Croix (when the well fields are operating at or near capacity). No ground water is used in the WAPA distribution system on St. Thomas and St. John at the present time; however, the authority has previously investigated the use of ground water in the Sugar Estate, St. Thomas and Estates Adrian and Carolina, St. John, to augment the desalinated water supply.



#### WAPA : St. Croix

On St. Croix, WAPA's principal water supply comes from desalination units, which are capable of producing about 3 MGD(storage capacity =40 MG). Additionally, WAPA can potentially extract up to 1 MGD of ground water from seven (7) well fields. The principal aquifer in St. Croix is the Kingshill aquifer, predominantly a limestone aquifer that underlies the central portion of the island. The Estates Concordia, Adventure, Fairplains, Negro Bay and Barren Spot well fields tap this aquifer. The western Mahogany Road and La Grange well fields tap an alluvial and fractured bedrock aquifer.



#### WAPA : St. Thomas

On St. Thomas, WAPA provides desalinated water for distribution (approximately 2.2 MGD (storage capacity =40 MG)). Although WAPA used several wells in the vicinity of the St. Thomas Hospital in Sugar Estate from the late 1960s to the early 1980s, they are no longer used. As part of a recent ground water source exploration program designed for WAPA's Emergency Ground Water Supply (EGWS) Program, the US Geological Survey (USGS) drilled several test wells in various locations on St. Thomas. USGS performed pumping tests on these wells in the Sugar Estate area, but to date, the wells have not been put into production.

#### WAPA : St. John

On St. John, WAPA's principal potable water source is a 500,000 GPD vapor vacuum compression unit. Additionally, several wells were drilled on St. John under the EGWS program described above, but to date, with the exception of one well in Estate Carolina, the wells have not been put into production. The Estate Carolina WAPA well was put on line in the spring of 1994 as supplemental water supply for the eastern portion of St. John. The well provides mineral-rich water (TDS of approximately 2500 ppm) from a shallow, unconsolidated material aquifer, which is pumped into pressure tanks to meters for non-potable use only.

#### *2. Public Water Systems that utilize groundwater*

In addition to WAPA, water-hauling companies utilize wells as a secondary water supply source. Several water-hauling companies treat the ground water by reverse osmosis (RO), and then distribute the water via trucks to individual residences and businesses. Several water-bottling companies also do the same prior to bottling and distribution. These public water systems also include apartment complexes, schools, condominiums, hotels, bars and restaurants. In addition to drinking water quality monitoring parameters, these systems must monitor their well water for Total Dissolved Solids.

**Table IV.A.3 Overview of VI Public Water Systems Utilizing Groundwater**

Island	Number of Water Systems Utilizing Groundwater				
	Community	Non-Transient, Non-Community	Transient, Non-Community	Bottled Water Plant	Total
St. Croix	9	4	10	1	<b>24</b>
St. Thomas	2	4	13	4	<b>23</b>
St. John	0	1	2	1	<b>4</b>

Wellhead protection is vital to the long-term quality of life in the VI as the population increases. Fresh water is an especially valuable resource in the VI. The meager but important ground water resources are valuable supplements to the expensive, highly energy-consumptive desalinated water which is so heavily relied upon by much of the population of the VI. Existing untainted ground water resources must be protected. The resources that have already been subjected to contamination by leaking underground storage tanks (USTs), leaking sewer lines and improper storage and disposal of

chemicals must be managed to protect adjacent uncontaminated sources and restore damaged resources for future use.

## B. Wellhead Protection Actualization Assessment

The Territory does not at this time have a formal Wellhead Protection Plan (WHPP). There is a Wellhead Protection Final Report which was intended to form the nexus for a WHPP. It is anticipated that a WHPP be developed following the US EPA example ordinance<sup>3</sup>. The categories of permitted and non-permitted activities around wellheads<sup>4</sup> contained in the model ordinance will be used. See Table , below for examples of the most common problems in St. Croix.

<b>Table IV.B.1 Non-Permitted uses in Zone 1</b>	
Automobile body/repair shop	1
Gas station	2
Fleet/trucking/bus terminal	3
Dry cleaner	4
Electrical/electronic manufacturing facility	5
Machine shop	6
Metal plating/finishing/fabricating facility	7
Chemical processing/storage facility	8
Wood preserving/treating facility	9
Junk/scrap/salvage yard	10
Mines/gravel pit	11
Irrigated nursery/greenhouse stock	12
Confined animal feeding operations	13
Land divisions resulting in high density (>1 unit/acre) septic systems	14
Equipment maintenance/fueling areas	15
Injection wells/dry wells/sumps, except for single-family residences directing gutter downspouts to a drywell	16
Underground storage tanks, (except those with spill, overflow, and corrosion protection requirements in place)	17
All other facilities involving the collection, handling, manufacture, use, storage, transfer or disposal of any solid or liquid material or waste having potentially harmful impact on groundwater quality including illegal disposal of solid waste on the surface not directly associated with a facility	18

<sup>3</sup> The model is available at <http://www.epa.gov/nps/ordinance/mol7.htm#groundwater>.

<sup>4</sup> Actually, in Zone 1, which for St. Croix is the 20-yr TOT radius.

<b>Table IV.B.1 Non-Permitted uses in Zone 1</b>	
All uses not permitted in the underlying zone district	19

In Table IV.B.1, note that the sequential numbers are not intended as rankings; these numbers will be used to reference the specific threats in the database under development.

### *1. Time of Travel Buffers*

It is abundantly clear that essentially none of the existing priority wells, vendors, WAPA or large user, will meet any of the Time-of-Travel (TOT) suggested, either of the Model Ordinance, which uses 1,000 feet radius (as typical of a 6-month TOT) or in the calculations which are both more rigorous and locally calculated but give 20-yr TOT's radii of approximately 1,400 feet or less with most around 1,000 feet. On the La Grange TOT the primary threats are the number of residences, all with on-site wastewater treatment as well as solid waste, industrial waste and stored or abandoned equipment. For Negro Bay wells, the primary threats are solid waste (informal dumps) and possible spills from the National Guard facility and the several warehousing facilities to the North. Negro Bay and New Golden Grove are probably the best-suited well fields on St. Croix from the standpoint of nearby risks; i.e., risks within the TOT wellhead protection area.

### *2. Flooding*

All of the WAPA and vendor production wells and many of the large users' wells are located in flood hazard areas. Most WAPA wells are protected from inundation by reinforced concrete (RC) platforms and risers; an example is at Figure IV.C.10. These are typical of the wells inherited by WAPA from DPW and those developed by the Authority since. A much rarer WAPA well is at Figure IV.C.11 where the casing is continued to about 3' above a platform but without the RC riser. This may be typical of wells developed by private owners and leased to WAPA.

A number of vendors and smaller users near WAPA production wells are notably susceptible to flooding or entry of contaminants through inadequate siting or poorly sealed or unsealed well heads. Illustrations of these are at Figure IV.C.12 through Figure IV.C.10.

### *3. Particular threats – poor siting or construction*

There are a number of egregiously poor sites with wells; poor either because of sites selected and developed or because of poor or mismanagement of the wellhead area or areas adjacent. Since much of this development occurred before there was concerted effort to control development and manage wellhead impact areas there is little that can be done at this point. Some ideas are discussed below in the section - Suggestions for Interim Measures. Often, in the case of adjacent problems, the well owner or operator has little or no control over the use of that area. An example of poor siting is at Figure IV.C.16; this is a shallow well with a compromised seal and subject to overland flows that could include significant amounts of diesel and material from the road.

An example of poor site management (and a very poor well seal) is at Figure IV.C.20 and Figure IV.C.21. While the fuel tank might not exceed the minimum to require containment, it is directly adjacent to a well. In addition, the wellhead is very poorly sealed.

Another example is at Figure IV.C.22 and Figure IV.C.23. Figure IV.C.23 is the cut-off well pipe and conduit for what was a production well at this site. This well is within 10 feet of a well in production for a water vendor and is, as may be seen, completely unprotected.

#### *4. Summary*

The most common threat to wells and well recharge areas are the ubiquitous aggregations of household, construction and mechanical solid waste. However, it is apparent that the efforts of the Waste Management Authority have borne fruit; much of this material no longer occurs with the density nor is it as common as it was previously. Exceptions are piles of waste on private property (see Figure IV.C.24 and Figure IV.C.25).

It is important to note that few of these threats to groundwater are the result of intentional misconduct or malfeasance. More typically, they are the result of a lack of understanding of the possible consequences of action or inaction. DPNR will schedule some community consciousness-raising meetings, utilizing some school time for students, for example. In addition, reminding landowners and agencies of responsible land management and the fragility of the groundwater resource in the Territory might also pay dividends.

#### *5. Suggestions for Interim Measures*

The following suggestions assume that more staff time and effort will be available for implementing the permit program. While many wells had permits most have expired and many do not meet minimum requirements for permitting. For example, it is believed that most residential wells do not have meters and many commercial wells also do not have meters – or functioning meters – and reporting and permit renovation is not done. In addition, there are a number of large production wells that are not and have never been permitted.

##### **i. Educate Licensed well drillers**

DPNR-DEP issues well drillers licenses. DPNR-DEP will use the opportunity to focus educational efforts on the single entity (well drillers) that would touch every new well. If permitted well drillers were responsible for acquiring permits for wells a body of knowledgeable persons would be dealing with DPNR-DEP in the siting and development of new wells.

##### **ii. Individual existing wells**

At least some effort should be made to assist owners and operators of production wells to reduce threats in the areas of their wellheads. The adoption of a wellhead protection plan should help resolve this, but in the interim assistance in the form of consumer education and assistance with enforcement of Territorial regulations on unpermitted solid waste sites, illegal dumping and storage and handling of liquids, toxic and hazardous materials could provide some relief for owners of wells subject to surface and sub-surface threats.

### iii. Relief for owners of permitted wells

The Territory should begin to ensure that all permits are current and that permit holders understand their responsibilities in ensuring the viability of groundwater resources in USVI. As part of this effort DPNR-DEP could provide assistance with cataloguing specific threats to permitted wells and provide permittees with an understanding of the possible effects of those threats to their water quality and a record of the then-current state at the time of renovation. In addition, DPNR-DEP could provide permittees with measures they can undertake to eliminate, reduce or manage those risks. As an incentive to renovating permits DPNR-DEP could provide well owner/permittees a specific time period to deal with threats under their control with no penalties.

## C. WAPA wells

### 1. WAPA wells to remain in service

The WAPA wells that are to remain in service are shown at Table, below. WAPA has not used any groundwater since about April of 2010 since the RO unit at Richmond came on-line. The wells to be retained will be secured and stand-by power will be provided. As part of the work in this project the possibility of distributing normal power from a central location, probably the Fairplains Pump Station, will be considered and reported. This will ease the provision of stand-by power since a single large generator located at or near the central location could be provided and power distributed using the same network used for normal power. Individual costs are not provided at this time, though approximate costs will be part of the final report following consultations with WAPA on the form and generality of security and service-assurance techniques. All these wells use the Fair Plains pump station.

Table IV.C.1 Primary WAPA Wells				
Well# <sup>5</sup>	Well Name	GPM	SWL <sup>6</sup>	Depth
9	Bethlehem	40	38.1	114.2
10	Bethlehem	40	27.6	121.3
5A	Negro Bay	10	52.7	110.5
5	Negro Bay	25	59.3	114.9
6	Negro Bay	20	65.3	130.1
7	Negro Bay	35	58.6	115.1
6	New Golden Grove	35	59.3	114.9
7	New Golden Grove	35	63.3	130.1
8	New Golden Grove	37	52.7	110.5
15A	New Golden Grove	40	62.1	122.5

<sup>5</sup> These numbers will be standardized; at least two methods are currently in use.

<sup>6</sup> Standing Water Level.

Output of these wells, as reported by WAPA in 2010, sums to about 0.5 MGD (24-hr day, or 0.25/12 hr day). It remains to be seen if these will improve with reduced WAPA usage. DPNR-DEP has recommended placing well-level meters in at least one well in Negro Bay and one in New Golden Grove. Historical data for static water levels[3] in St. Croix are shown at Figure IV.C. and Figure IV.C.. As may be seen Negro Bay and New Golden Grove show the best levels.

Half a million gallons per day would approximate around 20-25% of normal production. In the event that these wells would become the sole source in the event of a weather or geologic event interrupting normal service WAPA and St. Croix could probably maintain minimal service for several weeks. The risk of such an event and the value of additional emergency production must be considered.

#### **WAPA Wells not now scheduled for service beyond 2010**

These are shown in Table IV.C.2. These are mostly wells that were developed and owned by others and WAPA has or will let leaseholds lapse. Owners will be advised that these wells must either be permitted and comply with construction and protection norms or abandoned and closed properly. WAPA-owned wells will be subject to the same requirements.

<b>Table IV.C.2 WAPA Wells not intended for service after 2010</b>				
Well#	Well Name	GPM	SWL	Depth
18	Adventure	7	25.6	88.2
19	Adventure	10	35.6	100.2
20	Adventure	14	33.6	97.6
5	Adventure	25	31.5	103.3
6	Adventure	13	39.3	99.2
8	Adventure	13	25.7	85.9
1	Fairplain	10	27.1	86.7
1	Old Golden Grove	10	29	91.3
15	Old Golden Grove	12	33.5	94.5
16	Old Golden Grove	13	35.7	86.7
21	Old Golden Grove	14	28.7	91.4

In addition to the wells and well fields above, the following well fields (see Table IV.C.3, below) have been in production or were developed at one time and will be visited and checked for WHPP compliance. Those that have reverted to private hands will be noted and DPNR will schedule dates for closing or rehabilitation, sanitary seal acceptability and security. A priority schedule will be developed.

**Table IV.C.3 WAPA Well Fields not intended for service after 2010**

Field Name	Number of Wells/ Name used for La Grange and Mahogany Road wells at one time
Prosperity	
Mahogany Road	4 All require proper closure or improved protection and seals if owner wants to continue use.
La Grange	2 Operated by Crystal Springs at this point.
Old Golden Grove	4
Barren Spot	9
Adventure	9 All are acceptable; will need improved security if owner desires to use these.
Concordia	5

**Wells selected by the amount of water pumped.**

The amount of pumpage is generally uncertain and our cut-off is 6,000 gallons per day (gpd, ~2MG per year). The first priority for these wells will be to verify the production numbers.

It is known that a number of these wells belong in the high-risk category, in addition. For example, several of these wells are known to be located in parking lots though they are not precisely located. In general, these have the same threats as do the WAPA wells, with the added problem that they can be very near unsewered population centers.

**Wells prioritized by risk.**

Risk is used as an analog for the population served or affected by this source and is estimated by:

- a. Type of purveyor
  - i. Water Source (vendors, standpipe)
  - ii. Bottled Water vendor or source
  - iii. Condominiums
  - iv. Apts
  - v. Hotels
- b. Population served
  - i. Total for Condos, Apts and Hotels
  - ii. NT for others

There are a total of approximately 60 wells in addition to the WAPA wells, or about 140 wells in all. These are listed in Table IV.C.5.





**Figure IV.C.10. WAPA well with typical platform and riser.**



**Figure IV.C.11. Untypical WAPA well.**





**Figure IV.C.12. Cover of well in parking lot.**



**Figure IV.C.13. Wellhead in sump condition with open sanitary seal (rope and flexible conduit for pump).**



**Figure IV.C.14. Well with possible surface sources of contamination; note ditch from cistern/wastewater overflow and dumpster.**



**Figure IV.C.15. Wellhead with compromised sanitary seal and cut in casing.**





**Figure IV.C.16. Francis Water Delivery well site. Google Earth.**



**Figure IV.C.17. Francis Water Site; 1 is well house, 2 is oil tank and ditch.**



**Figure IV.C.18. View from North, near well house. Note slope towards well.**



**Figure IV.C.19. Well head and pump, shallow Francis Water Delivery well.**



**Figure IV.C.20. Laundromat well without effective seal.**



**Figure IV.C.21. Diesel tank without containment adjacent to well.**





**Figure IV.C.22. Production well for vendor; note the galvanized cover.**



**Figure IV.C.23. What's under the cover; this abandoned well is adjacent to a production well providing potable water.**



**Figure IV.C.24. Trash near Bethlehem Ghut and wells.**



**Figure IV.C.25. Abandoned Caustic tank near Bethlehem Ghut and wells.**



**Figure IV.C 26 Improvement of the GWP during FY-11**



The initial inspection well has no meter, no wellhead protection and no sanitary condition around the well.



The follow-up compliance inspection the meter and wellhead protection were in place, and the surrounding areas of the well were clean.



The initial inspection well has no meter and the seal of the well was open.





The follow-up compliance inspection a meter was place and the well seal in correct way.



The initial inspection well has no meter.



The follow-up compliance inspection a meter was place.



The initial inspection show inactive wells that not were seal and abandon properly.



The follow-up compliance inspection all the wells were seal and abandon properly.

### Areas that Need to Be Monitor for Improvement



A monitoring compliance inspection that verify the proper construction of the well.



The enforcement of the proper abandonment of the inactive wells.



The enforcement of the proper capping and sealing of the wells to prevent wasteful use of the water



The enforcement of the wellhead protection to prevent the contamination of the groundwater.

**Table IV.C.4. Wells Selected By Daily Appropriation**

<b>Property Owner</b>	<b>Pump Rate (GPD)</b>
HOVENSA LLC	599999
THE BUCCANEER HOTEL	520000
FIRST AMERICAN DEVELOPMENT GROUP	315000
CARAMBOLA BEACH RESORT & SPA	200000
VIRGIN ISLANDS RUM INDUSTRIES LTD	142000
SEVEN SEAS WATER CORP.	120000
GRAPE TREE SHORES, INC. (Divi Carina)	100000
LOCKHART, HERBERT	100000
CARLOS TRADING, LLC	100000
CROWN MOUNTAIN WATER	80000
AASA WATER SUPPLY	75000
CONTRANT RESORT/ MAHOGANY RUN GOLF COURSE	75000
US ENVIRONMENTAL PROTECTION AGENCY (Remediation Site)	72000
HARBORVIEW APARTMENTS	70000
DVERGSTEN COMPANY, INC	70000
HARBORSIDE CORP/ BOLONGO BAY BEACH RESOT	65000
CHARLES O SCHUSTER TRUST	60000
COUNTRY WATER	60000
MCM TRUCKING	60000
SOUTHGATE GARDENS, INC	60000
GRENMA, INC. DBA PEPPERTREE TERRANCE	60000
VIRGIN WATER, INC.	56000
Krystal Spring LLC Water Delivery	50000
AQUARION SYSTEM, INC.	50000
REYNOLDS, TIMOTHY & KAREN	50000
EGLIN, GENE	50000
VIRGIN BEVERAGES RIXSKIS, INC	50000
O'NEIL, RAYMOND & CANTON, REUBEN	50000



SAPPHIRE BAY CONDO. WEST	45000
VIRGIN ISLANDS PORT AUTHORITY	45000
COUNTRY DAY SCHOOL	40000
HEAVY MATERIAL, LLC	40000
SCHEUER, WALTER	36000
WESTIN ST. JOHN HOTEL CO.	35000
ST. CROIX DAIRY PRODUCTS, INC.	30000
SCHNELL, DONALD	30000
LOFTUS, NOEL	30000
La Reine Laundry	30000
CARIBBEAN HYDRO-TECH INC	30000
COFFELT, GORDON L.	30000
MARCOS WATER	30000
TUTU PARK LTD	28000
Sunny Isle Laundry	25000
Castle Coakley Laundry	25000
RELIANCE LOVENLUND ASSOCIATES, LLLP	24000
UNITED CORPORATION	24000
VIRGIN ISLANDS NATIONAL PARK	22500
Krystal Spring LLC Water Delivery	20000
AMERICAN YACHT HARBOR	20000
SOOKRAM, SIEWDATH	20000
LITTLE ST. JAMES, LLC/EPSTEIN JEFFREY	20000
CHENAY BAY BEACH RESORT	20000
COAKLEY BAY CONDOMINIUMS	20000
ST. THOMAS DAIRIES/ TRANS- CARIBBEAN CORP.	20000
VIRGIN ISLANDS NATIONAL PARK	19000
GINN LA USVI GULF, LLLP	18400
BATES TRUCKING & TRASH REMOVAL, INC	18000
MARSH, GENEVIEVE	15000
VIRGIN ISLANDS MONTESORRI SCHOOL	15000
SUGAR ESTATE ASSOCIATES	15000
FELIX, EMMANUEL	15000

UNIVERSITY OF THE VIRGIN ISLANDS	15000
SWEET LIME VILLAGE HOMEOWNERS ASSOC	14400
ST. CROIX MUTUAL HOMES	14000
VIRGIN ISLANDS DEVELOPMENT CORP.	13000
LE BLEU WATER INC	13000
PARRIS, JOHN JR.	12000
YARD CARE LLC/ PC LANDSCAPING	12000
RELIANCE HOUSING SERVICES, LLC	10000
MATTHIAS, DOUGLAS	10000
LIBURD, ALMANDO	10000
BERRY, CRYSTALIA	10000
ROSS ESTATES INC.	10000
EMERALD BEACH CORPORATION	10000
SAINT JOHN LAND INVESTMENT, LTD.	8640
BRUGAL RUM & CO	7500
CANDLE REEF II ASSOCIATION	6000
ISAAC, FERNANDO & LEIDA	6000
DEPARTMENT OF EDUCATION	6000
MAHARAJ, PREMA	6000
WEEDEN, DONALD	5100
CANTON, MARIO	5000
ROLLER, HUGO	5000
BEER, BENJAMIN	5000
WATERGATE VILLAS WEST ASSOCIATION	5000
BURNNETT TOWERS CONDO.	5000
CALEDONIA SPRINGS	5000
COHEN, LAURENCE B. & WENDY H.	4500
STEWART, DOUG	4500
Heavy Material VI LLC	4500
DEPARTMENT OF AGRICULTURE	4500
WINDWARD PASSAGE HOTEL	4320
SOLOMON'S PLAZA, INC.	4000
CALLSEN, KATHRYN O.	4000

ST. CROIX AMERICAN YOUTH SOCCER ORGANIZATION	4000
GENTLE WINDS CONDOMINIUM ASSOCIATION, INC	3600
FRANCIS, EDWARD SLIM	3000
COLONY COVE ASSOCIATION	3000
DEWOLFE, HOWARD/BOTANICAL GARDENS,INC	3000
TURNBULL, WALLACE	3000
J.B. JONES FARMS	2500
ROHN, LEE	2500
LAPLACE, LARRY	2500
LAPLACE, LARRY	2500
RHF LOVENLUND ASSOCIATES, LTD.	2500
BOSCHULTE, JAMES	2500
FRANCIS WATER	2200
LUTHERAN SOCIAL SERVICES (QUEEN LOUIS HOME)	2000
BRADY, JOHN	2000
SCHUSTER, ELLEN	2000
FARBER, NADIA	2000
WHARFSIDE VILLAGE	2000
MARSH, RUPERT	2000
RUTNIK, ANDREW	2000
CARIBBEAN MINI GOLF	2000
B&W REALITY INVESTMENT LTD.	2000
MAYNARD, PAUL V.	2000
VIRGIN ISLAND DEPARTMENT OF PUBLIC WORKS	2000
GOOD HOPE COMMUNITY TOWN HOUSE	1800
FREDERICK, HUBERT	1500
RICHARD & LAURIE WOOD TRUST U/T/D	1500
TK PROPERTIES, INC.	1500
DEPARTMENT OF AGRICULTURE	1500
STEVENS, CARLTON L.	1500
EMANUEL, DESMOND	1500
ESTATE CARLTON	1500



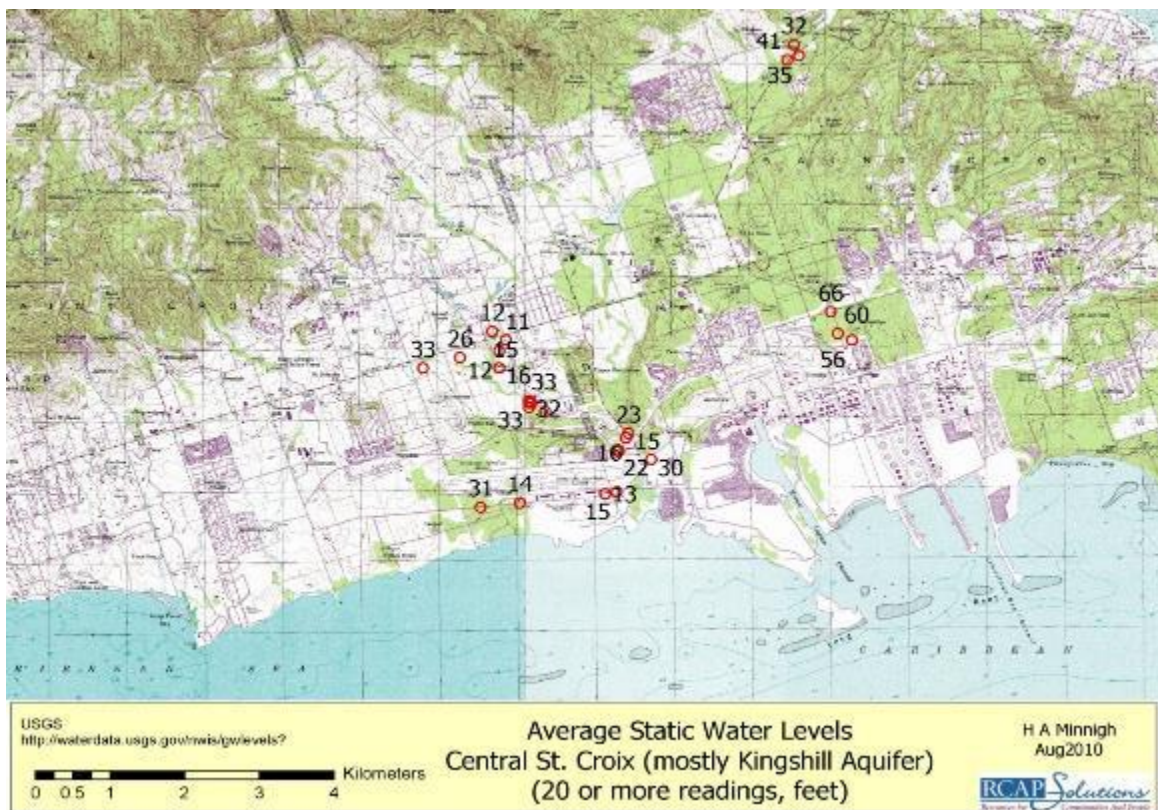
CONDOMINIUM	
DEPARTMENT OF AGRICULTURE	1400
SOUTHGATE FARM, INC.	1200
GONZALEZ, DEMETRIUS	1000
ARRENDELL, VINCENT A.	1000
GEORGE, CLINTON	1000
THE GOLDEN TWIN APARTMENT	1000
KEMBA MASSOMA & ANA KAZA	1000
WALLACE, LEOPOLD	1000
RUDOLPH A. JR. - PIMPY'S	1000
MASSAC, CHRISTOPHER KEITH	1000
LAKE, GEORGE	1000
CHARLES, MICHEL	1000
BOYLAN, JEFF	1000
PACHECO, RAFTER & RUBY	1000
K & C DEVELOPMENT, LLC	1000
LARCHEVEAUX, ARCHIBALD	1000
THOMAS, RUDOLPH	1000
CARIB BEACH RESORT	1000
ELMOUR, MARTIN	1000
FRANCIS, WINSTON S.	1000
SUNNY ISLE DEVELOPERS LLC	1000
THE M.K. ARMSTRONG TRUST	1000
ISLAND MEDICAL CENTER	1000
PETERSEN, LUISA	1000
LORRAINE ASSOCIATES	1000

<b>Table IV.C.5. Wells selected by risk to populace</b>				
<b>System Name</b>	<b>Class</b>	<b>Category</b>	<b>Source</b>	<b>Findings</b>
Aqua-Mist	TNC	Water Bottler	R/GW	Purchased water for bottling. Well now only serves Laundromat on site; unable to access well, owner is finding keys.
Francis Water Service Delivery & Sales	TNC	Water Source	GW	Out of service; well requires work and better protection.
Francis Purified Water	BW	Bottled Water	GW	Out of service; well requires work and better protection.
Bates Trucking	TNC	Water Source	R/GW	Well is sited with many areal threats. Site housekeeping is notably good.
Caledonia Spring	TNC	Bottled Water	R	Well out-of-service and with acceptable surface closure. Bottling RO water purchased from others.
Country Water	TNC	Water Source	GW	Nominally this well is also treated by RO. Not verified through site and well visited. Distribution lines from abandoned well need to be blanked and some concerns with cistern.
Crystal Springs	TNC	Water Source	GW	Uses former WAPA La Grange well. Well is nearly acceptable; numerous areal threats.
Marcos Trucking	TNC	Water Source	R/GW	Wells difficult to verify; encased in RC structures. Fuel stored on-site next to subsurface electrical service. Site housekeeping particularly good.
Carlton Gardens	TNC	Water Source	GW	1-D Estate Carlton
Emmanuel's Service	TNC	Water Source	R/GW	Unprotected abandoned well adjacent to production well; surface threats. Owner is particularly responsive.
Galloway's Delivery	TNC	Water Source	R/GW	Out-of-service. Well is well-sited and seal is acceptable. Significant areal threats.
Schuster Water Delivery (Blue Mountain Water)		Water Source/ Bottled Water		Particularly good seals and siting on 2 wells in service. A third well under development (or rehabilitation) is open and needs attention. Significant areal threats.
Southgate Gardens	TNC	Water Source	GW	Unable to access; will continue. It is thought that Seven Seas is serving most of their former customers.
United Corp. Standpipe	TNC	Water Source	R/GW	Wells for shopping center need proper sanitary seals. Located in sump conditions and need to be reviewed for this.
Carino's Water Service	TNC	Water Source	GW	Out-of-service; now operated by Paradise Purification
Unknown vendor		Water	GW	Near USVI National Guard at corner of MG Jean

<b>Table IV.C.5. Wells selected by risk to populace</b>				
<b>System Name</b>	<b>Class</b>	<b>Category</b>	<b>Source</b>	<b>Findings</b>
		Source (supplies some water for bottlers)		Augustine Romney Memorial Drive. Not able to enter, but significant threat from heavy use for livestock on site.
Paradise Purification	BW	Bottled Water	W/GW	Shallow well nominally out of service. Well and seal are acceptable but significant areal threats.
Divi Carina Bay Resort	NTNC	Hotel	GWR	
Sunny Isle Shopping Center	NTNC	Corp	R/GW	Wells not all seen; to date are well done and seals are acceptable.
Lorraine Village	C	Apt	R/W/GW	20 & 21-A Estate Plessen
Buccaneer Hotel (replicate of use table)	NTNC	Hotel	R/GW	Estate Shoy
Diamond Cinema	NTNC	Corp	R/GW	Plot# 93A Estate Diamond
Med-Isle I	NTNC	Corp	R/W/GW	29D Estate Diamond-Suite 47
Village Mall	NTNC	Corp	R/WGW	113 Estate Barren Spot
St. Croix Mutual Homes #14/15	C	Apt	R/W/GW	Well protected and seal acceptable.
St. Croix Mutual Homes #22/23	C	Apt	R/W/GW	Well protected and seal acceptable.
St. Croix Mutual Homes #36	C	Apt	R/W/GW	Well protected and seal acceptable.
St. Croix Mutual Homes #44/45	C	Apt	R/W/GW	Not served by wells
St. Croix Mutual Homes #54/55	C	Apt	R/W/GW	Not served by wells.
Queen Louise Home*	C	Corp	R/GW	71 Estate Concordia

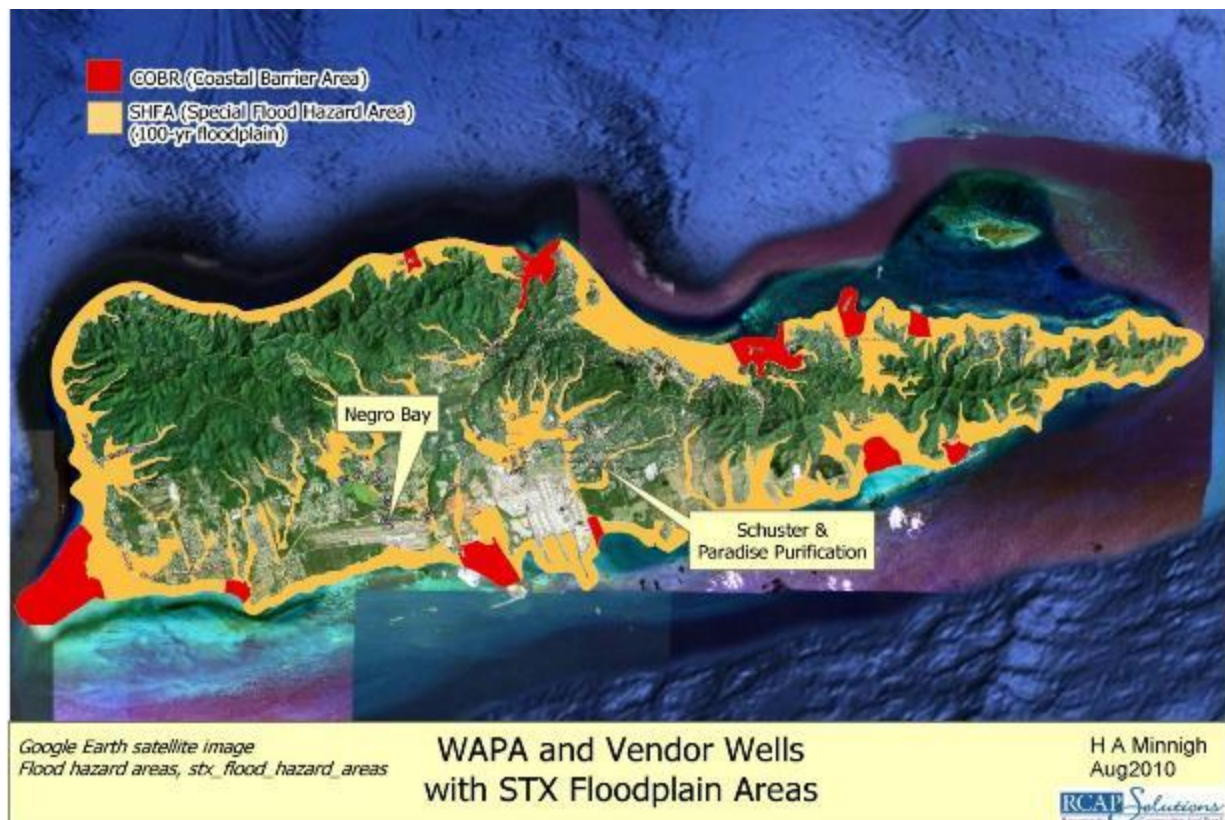


**Figure IV.C.27. Average Static Water levels in wells on St. Croix.**



**Figure IV.C.28. Static water levels, central St. Croix.**



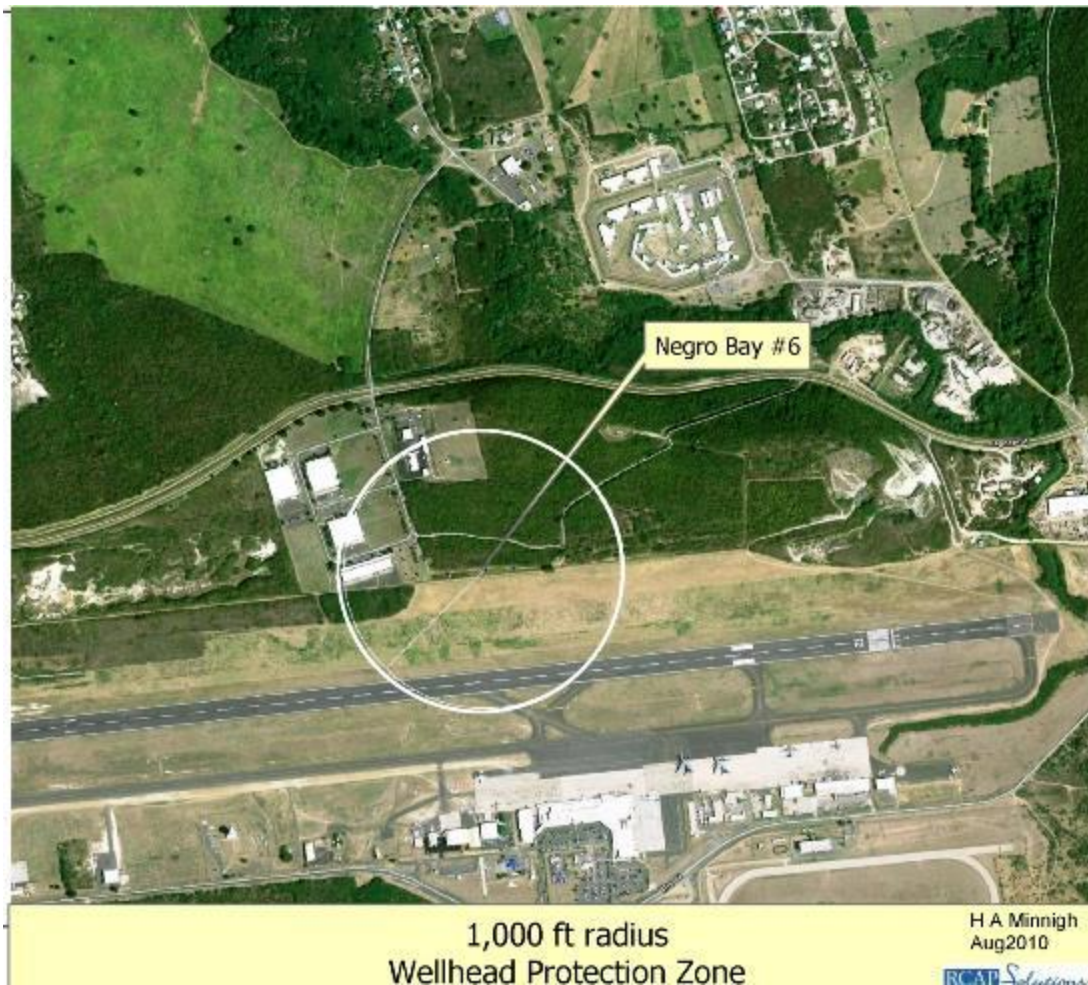


**Figure IV.C.29. Flood Risks and Production Wells**



**Figure IV.C.30. Wellhead Protection Zone, La Grange**





**Figure IV.C.31. Wellhead Protection Zone, Negro Bay #6**

## VII. REFERENCES

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## **Appendix 1: 2018 303(d) List Narrative**

# **2018 U.S. Virgin Islands 303(d) List of Impaired Waters**

**January 2019**

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## **I. SUMMARY**

Section 303(d) of the Clean Water Act requires States and Territories to develop a list of impaired waters (requiring Total Maximum Daily Loads, TMDLs) every even-numbered calendar year. An impaired waterbody is one for which technology-based pollution controls are not stringent enough to attain or maintain compliance with applicable State and Territory water quality standards. In order for a water quality-limited waterbody to attain water quality standards, a TMDL or other approved alternative management or protection plan must be developed and implemented specifically for that waterbody and/or pollutant(s) combination of concern. A TMDL is a quantitative assessment of the amount of pollution that a certain waterbody can assimilate while still meeting water quality standards.

EPA regulations require States and Territories to:

- Identify water quality limited waters still requiring TMDLs after the implementation of technology-based or other pollution controls.
- Establish a priority ranking of these waters.
- Identify pollutants causing impairment.
- Identify waters targeted for TMDL development over the next two (2) years.

## **II. LIST DEVELOPMENT**

This 2018 submission, required under Section 303(d)(1)(A) of the Clean Water Act, requires submission of a biennial list of water quality-limited waters. This list identifies waters that are not supporting designated uses because they do not meet surface water quality standards despite the implementation of technology-based effluent limits.

The complete list of data sources used to develop the USVI 2018 Section 303(d) list is as follows:

- U.S. Virgin Islands Ambient Monitoring data from Fiscal Years 2015-2017 (VI Department of Planning & Natural Resources, VIDPNR)
- U.S. Virgin Islands BEACH Monitoring data from Fiscal Years 2015-2017 (VIDPNR)
- 2016 U.S. Virgin Islands Section 305(b) Report (VIDPNR) 2016 303(d) List (VIDPNR)

The above list of data represents all existing and readily available data for the 2018 submission. These data are limited, and many waters have been listed based on a suspected impairment.

On November 2, 2015, the Division of Environmental Protection (DEP) began its data solicitation notice process announcing that data would be accepted until December 2, 2015. Additionally, letters were sent to the following agencies to request relative data: Environmental Protection Agency (EPA) Region 2; US Fish & Wildlife Service; National Park Service; University of Virgin Islands-Cooperative Extension Service and Center of Marine and Environmental Services; National Marine Fisheries Service; US Geological Survey and National Oceanic and Atmospheric Administration-National Undersea Research Program and Coral Reef Conservation Program; VI Department of Health; US Department of Agriculture; The Nature Conservancy. There were no responses to submit relevant data.

### III. DATA NOT USED

From the complete list of data sources used to develop the USVI 2018 Section 303(d) list as noted above in Section II, several data sets were not used. Those data sets, and reasons they were not used, are as follows:

- **NOAA Data submitted through Data Solicitation:** DPNR received only one set of data from outside agencies during the data solicitation period noted above; however, that data could not be used as it was from interstitial water samples, and DPNR does not currently have classifications for, water quality criteria for, or assess interstitial waters.
- **Fecal coliform datasets (all historical data):** As the fecal coliform criteria were replaced by enterococci bacteria criteria in the 2015 USVI Water Quality Standards, all historical fecal coliform data are no longer applicable. As such, the DEP has chosen to discard this data from the dataset and have removed all impairments for this parameter. The DEP has assessed that the bacteria data now collected will be an appropriate substitute for the fecal coliform parameter and therefore this change will meet the Antidegradation requirements detailed in the VI WQS. The delisting of waterbodies for this parameter is considered necessary to ensure that the parameter will not stay on the 303(d) list of impaired waterbodies in perpetuity, without the opportunity for de-listing.

There were 23 Assessment Units (AUs) which were delisted for fecal coliform since the water quality standard is no longer applicable:

Assessment Unit (AU)	Assessment Unit Name
VI-STC-16	Salt River Lagoon, Marina
VI-STC-18	Salt River Bay
VI-STC-27	Long Reef Forereef, East
VI-STC-29	Christiansted Harbor, East
VI-STC-30	Beauregard Bay
VI-STC-31	Buccaneer Beach

Assessment Unit (AU)	Assessment Unit Name
VI-STC-35	Tamarind Reef Lagoon (Southgate Lagoon)
VI-STC-37	Southgate Subwatershed, Offshore
VI-STC-39	Teague Bay
VI-STC-40	Teague Bay Backreef
VI-STC-47	Turner Hole Backreef
VI-STC-52	Great Pond Bay
VI-STC-56	Bugby Hole Backreef
VI-STC-62	Limetree Bay
VI-STC-64	Manning Bay/Estate Anguilla Beach
VI-STC-65	HOVENSA West
VI-STJ-25	Rendezvous Bay
VI-STJ-30	Cruz Bay
VI-STT-13	Mandahl Bay (Marina)
VI-STT-17	Mandahl Bay Subwatershed, Offshore
VI-STT-23	Vessup Bay
VI-STT-32	Jersey Bay, Offshore
VI-STT-35	Mangrove Lagoon

Another two (2) AUs were delisted for fecal coliform as there is now a TMDL in place (VI-STC-26 Christiansted Harbor and VI-STT-34 Benner Bay Lagoon Marina) and one (1) that was delisted as it was placed in ATTAINS by error: VI-STT-26 Red Hook Bay, offshore (the approved 2016 303(d) list did not include it).

- pH data taken from AUs in the St. Thomas / St. John District on 6/14/2016, 9/27/2016, and 12/13/2016:** This dataset was not used as the samplers noted that the pH values were suspect and there was some drift in the midday calibration of the sampling equipment. As a result, DPNR is not confident in the accuracy of the data or the representativeness of the water quality conditions. The nine (9) AUs which would have otherwise been delisted this cycle for pH will remain on the list of impaired waters.
- pH data taken from AUs in the St. Croix District on 6/14/2016, 9/27/2016, and 12/13/2016:** Despite St. Croix samplers making no comment on the suspect quality of the water quality data, DEP noted on review that the vast majority of pH readings exceeded the high range of the standard, however, over the same period in St. Thomas and St. John, there were very few samples which exceeded the standard. As such, DEP has categorized waterbodies with the high pH data as Category 3, rather than Category 5 in 2018.

#### IV. DELISTING ACTIONS

The following Assessment Unit impairments have been delisted for this cycle:

AU ID	AU Name	Associated Monitoring Stations	Class	Impairment	Years impaired	Delist Justification	Notes
VI-STC-02	Frederiksted Harbor	STC-29, STC-28, VI970611	C	Dissolved Oxygen	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STC-06	Sprat Hall Beach	STC-30, VI645288	B	Dissolved Oxygen	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2010; all current data shows WQS attainment
VI-STC-06	Sprat Hall Beach	STC-30, VI645288	B	Phosphorus	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2010; all current data shows WQS attainment
VI-STC-06	Sprat Hall Beach	STC-30, VI645288	B	Turbidity	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2010; all current data shows WQS attainment
VI-STC-13	Baron Bluff, subwatershed	STC-31, VI398766	B	Enterococcus	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2010; all current data shows WQS attainment
VI-STC-16	Salt River Lagoon, Marina	STC-33, STC- 33C	B	Fecal Coliform	2010, 2012, 2014	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STC-16	Salt River Lagoon, Marina	STC-33, STC- 33C	B	Turbidity	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2010; all current data shows WQS attainment
VI-STC-18	Salt River Bay	STC-33A STC- 33B VI146901 VI558328	B	Dissolved Oxygen	2016	TMDL Approved or established by EPA (4a)	Existing TMDL in 2016; Placed in category 5 in 2016 in error.
VI-STC-18	Salt River Bay	STC-33A STC- 33B VI146901 VI558328	B	Fecal Coliform	2010, 2012, 2014, 2016	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STC-24	Long Reef Backreef, West	STC-48	C	Enterococcus	Prior to 2010	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STC-27	Long Reef Forereef, East	STC-35A, STC- 36	B	Fecal Coliform	2016	Applicable WQS attained; due to change in WQS	delist; no longer WQS

AU ID	AU Name	Associated Monitoring Stations	Class	Impairment	Years impaired	Delist Justification	Notes
VI-STC-29	Christiansted Harbor, East	STC-1, STC-39, VI213332	C	Dissolved Oxygen	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STC-29	Christiansted Harbor, East	STC-1, STC-39, VI213332	C	Enterococcus	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STC-29	Christiansted Harbor, East	STC-1, STC-39, VI213332	C	Fecal Coliform	2010, 2012, 2014, 2016	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STC-30	Beauregard Bay	STC-2, STC-38, VI651587	B	Fecal Coliform	2010, 2012, 2014	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STC-30	Beauregard Bay	STC-2, STC-38, VI651587	B	Transparency / Clarity	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STC-31	Buccaneer Beach	STC-3	B	Dissolved Oxygen	2010, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STC-31	Buccaneer Beach	STC-3	B	Fecal Coliform	2010, 2014	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STC-35	Tamarind Reef Lagoon (Southgate Lagoon)	STC-4	B	Fecal Coliform	Prior to 2010	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STC-37	Southgate Subwatershed, Offshore	STC-5	B	Fecal Coliform	2010, 2014	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STC-39	Teague Bay	STC-8, STC-9, VI381319, UVI-Supp	B	Dissolved Oxygen	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2010; all current data shows WQS attainment
VI-STC-39	Teague Bay	STC-8, STC-9, VI381319, UVI-Supp	B	Fecal Coliform	2010, 2012, 2014, 2016	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STC-40	Teague Bay Backreef	STC-10, VI351774	B	Fecal Coliform	2010, 2012, 2014	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STC-46	Grapetree Bay	STC-11B	B	Dissolved	Prior to 2010, 2014	Applicable WQS attained;	No exceedances since 2010;



AU ID	AU Name	Associated Monitoring Stations	Class	Impairment	Years impaired	Delist Justification	Notes
				Oxygen		reason for recovery unspecified	all current data shows WQS attainment
VI-STC-47	Turner Hole Backreef	VI297470	B	Fecal Coliform	2016	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STC-52	Great Pond Bay	STC-13A	B	Fecal Coliform	2016	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STC-56	Bugby Hole Backreef	STC-14A, STC-14B, VI931289	B	Fecal Coliform	2016	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STC-56	Bugby Hole Backreef	STC-14A, STC-14B, VI931289	B	Phosphorus	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2010; all current data shows WQS attainment
VI-STC-59	Canegarden Bay	STC-15, STC- 15A	B	Phosphorus	2010, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2014; all current data shows WQS attainment
VI-STC-61	Hess Oil Virgin Islands Harbor	STC-16, STC-17	C	Dissolved Oxygen	2010, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STC-61	Hess Oil Virgin Islands Harbor	STC-16, STC-17	C	Phosphorus	2010, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STC-61	Hess Oil Virgin Islands Harbor	STC-16, STC-17	C	Temperature	2010, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STC-62	Limetree Bay	STC-18	B	Fecal Coliform	Prior to 2010	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STC-64	Manning Bay/Estate Anguilla Beach	STC-23	B	Fecal Coliform	2010, 2014	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STC-64	Manning Bay/Estate Anguilla Beach	STC-23	B	Phosphorus	2010, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2010; all current data shows WQS attainment
VI-STC-64	Manning Bay/Estate Anguilla Beach	STC-23	B	Turbidity	2010, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment

AU ID	AU Name	Associated Monitoring Stations	Class	Impairment	Years impaired	Delist Justification	Notes
VI-STC-65	HOVENSA West	STC-21, STC- 22A	B	Enterococcus	Prior to 2010	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2014; all current data shows WQS attainment
VI-STC-65	HOVENSA West	STC-21, STC- 22A	B	Fecal Coliform	Prior to 2010, 2016	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STC-75	Diamond Subwatershed,	STC-24B	B	Enterococcus	2010, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2010; all current data shows WQS attainment
VI-STC-75	Diamond Subwatershed, Offshore	STC-24B	B	Phosphorus	2010, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STC-75	Diamond Subwatershed, Offshore	STC-24B	B	Transparency / Clarity	2010, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STC-75	Diamond Subwatershed, Offshore	STC-24B	B	Turbidity	2010, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STC-76	Carlton Beach	STC-25	B	Dissolved Oxygen	Prior to 2010, 2014, 2016	Applicable WQS attained; original basis for listing was incorrect	Sample point STC-25 is taken in AU-VI-STC-77, not 76
VI-STC-76	Carlton Beach	STC-25	B	Turbidity	Prior to 2010, 2014	Applicable WQS attained; original basis for listing was incorrect	Sample point STC-25 is taken in AU-VI-STC-77, not 76
VI-STC-79	Good Hope Beach	STC-26	B	Enterococcus	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STC-82	Sandy Point, Nearshore West	STC-27, VI896490, VI907985	B	Dissolved Oxygen	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STC-82	Sandy Point, Nearshore West	STC-27, VI896490, VI907985	B	Enterococcus	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STJ-02	Hawksnest Bay	STJ-44B, NPS-3, NPS-4, VI255380	B	Dissolved Oxygen	2010, 2012	Applicable WQS attained; reason for recovery	No exceedances since 2012; all current data shows WQS

AU ID	AU Name	Associated Monitoring Stations	Class	Impairment	Years impaired	Delist Justification	Notes
						unspecified	attainment
VI-STJ-03	Trunk Bay	STJ-44A, NPS-5	A	Dissolved Oxygen	Prior to 2010	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STJ-05	Cinnamon Bay	STJ-44C, NPS-6, NPS-7	B	Dissolved Oxygen	Prior to 2010	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STJ-06	Maho Bay/Francis Bay	STJ-44D, NPS-8, NPS-9, VI536165	B	Dissolved Oxygen	2010	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STJ-06	Maho Bay/Francis Bay	STJ-44D, NPS-8, NPS-9, VI536165	B	Turbidity	2010	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STJ-15	Round Bay	STJ-57, NPS-22, UVI-Supp	B	Enterococcus	2012	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STJ-19	Great Lameshur Bay	STJ-50, STJ-51, UVI-Supp	B	Turbidity	2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STJ-21	Genti Bay, nearshore	STJ-49, UVI-Supp	B	Turbidity	2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STJ-25	Rendezvous Bay	STJ-47, NPS-23, VI204627, VI402599	B	Fecal Coliform	2010, 2012, 2016	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STJ-26	Chocolate Hole	STJ-46, NPS-24, VI391298	B	Dissolved Oxygen	2010, 2012	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STJ-28	Great Cruz Bay	STJ-45, NPS-25, VI779192	B	Dissolved Oxygen	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STJ-30	Cruz Bay	STJ-43A, STJ- 43B, STJ-43C, STJ-43D, NPS- 27, NPS-28,	B	Dissolved Oxygen	2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment

AU ID	AU Name	Associated Monitoring Stations	Class	Impairment	Years impaired	Delist Justification	Notes
		NPS-29, VI309453					
VI-STJ-30	Cruz Bay	STJ-43A, STJ- 43B, STJ-43C, STJ-43D, NPS- 27, NPS-28, NPS-29, VI309453	B	Fecal Coliform	2012, 2014	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STJ-30	Cruz Bay	STJ-43A, STJ- 43B, STJ-43C, STJ-43D, NPS- 27, NPS-28, NPS-29, VI309453	B	Transparency / Clarity	2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-01	Botany Bay	STT-9	B	Enterococcus	2010	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-04	Santa Maria Bay	STT-11	B	Dissolved Oxygen	2010	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-05	Caret Bay	STT-12	B	Dissolved Oxygen	Prior to 2010	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-08	Hull Bay	STT-14, VI616865	B	Dissolved Oxygen	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-10	Magen's Bay	STT-15, STT- 15A, STT-15B, VI672756	B	Dissolved Oxygen	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-13	Mandahl Bay (Marina)	STT-16B, STT- 16C	B	Enterococcus	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-13	Mandahl Bay (Marina)	STT-16B, STT- 16C	B	Fecal Coliform	2010, 2012, 2014	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STT-15	Sunsi Bay	STT-17B	B	Dissolved Oxygen	2010, 2012	Applicable WQS attained; reason for recovery	No exceedances since 2012; all current data shows WQS

AU ID	AU Name	Associated Monitoring Stations	Class	Impairment	Years impaired	Delist Justification	Notes
						unspecified	attainment
VI-STT-16	Spring Bay	STT-17A	B	Dissolved Oxygen	Prior to 2010	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-17	Mandahl Bay Subwatershed, Offshore	STT-16A, STT- 18, VI577932	B	Dissolved Oxygen	2010, 2012	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-17	Mandahl Bay Subwatershed, Offshore	STT-16A, STT- 18, VI577932	B	Fecal Coliform	2010, 2012	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STT-18	Water Bay	STT-19, VI591668	B	Dissolved Oxygen	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-19	Smith Bay	STT-20, VI431925	B	Dissolved Oxygen	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-21	St. John Bay	STT-21A, VI327776	B	Dissolved Oxygen	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-23	Vessup Bay	STT-22B	B	Fecal Coliform	2016	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STT-23	Vessup Bay	STT-22B	B	Temperature	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-25	Great Bay	STT-23, VI505006	B	Dissolved Oxygen	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-28	Cowpet Bay	STT-24, STT- 24A	B	Dissolved Oxygen	Prior to 2010	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-32	Jersey Bay, Offshore	STT-25	B	Fecal Coliform	Prior to 2010	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STT-34	Benner Bay Lagoon Marina	STT-27D STT- 27E	B	Dissolved Oxygen	2016	TMDL Approved or established by EPA (4a)	Existing TMDL from 2003. Incorrectly kept on 303(d) list.

AU ID	AU Name	Associated Monitoring Stations	Class	Impairment	Years impaired	Delist Justification	Notes
VI-STT-35	Mangrove Lagoon	STT-27A STT- 27B STT-27C	B	Fecal Coliform	2016	Applicable WQS attained; due to change in WQS	delist; no longer WQS
VI-STT-37	Frenchman Bay	STT-29A, VI891065	B	Dissolved Oxygen	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-38	Limetree Bay	STT-29B, VI776527	B	Dissolved Oxygen	2010, 2012	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-43	St. Thomas Harbor, Inner	STT-31B, STT-31C, STT-32A, STT-32B, STT-33A, STT-33B, STT-34, STT-35, STT-36, STT-37, STT-38	C	Enterococcus	2016	TMDL Approved or established by EPA (4a)	Existing TMDL in 2016; Placed in category 5 in 2016 in error.
VI-STT-52	Lindbergh Bay	STT-5A, STT-5B, VI514102	B	Dissolved Oxygen	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-55	Brewers Bay	STT-7A VI293962	B	Dissolved Oxygen	2010, 2012, 2014	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-57	Fortuna Bay	STT-8	B	Dissolved Oxygen	2010	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2012; all current data shows WQS attainment
VI-STT-57	Fortuna Bay	STT-8	B	Enterococcus	2010	Applicable WQS attained; reason for recovery unspecified	No exceedances since 2010; all current data shows WQS attainment

## V. U.S. VIRGIN ISLANDS MONUMENT LANDS

Assessment Units that fall within the National Park Service boundaries were monitored and assessed during this reporting cycle for FY2016-2017. Assessment of the data found 6 AUs that fall within the National Park Service boundaries to be impaired, as follows:

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Years impaired
VI-STC-16	Salt River Lagoon, Marina	STC-33, STC-33C	Low	B	Enterococcus	2010, 2012, 2014, 2018
VI-STC-18	Salt River Bay	STC-33A STC-33B VI146901 VI558328	Low	B	Dissolved Oxygen	2016, 2018
VI-STC-18	Salt River Bay	STC-33A STC-33B VI146901 VI558328	Low	B	Enterococcus	2010, 2012, 2014, 2016, 2018
VI-STC-18	Salt River Bay	STC-33A STC-33B VI146901 VI558328	Low	B	Turbidity	2010, 2012, 2014, 2016, 2018
VI-STC-41	Buck Island Backreef	STC-6	Low	A	Temperature	2018
VI-STJ-02	Hawksnest Bay	STJ-44B, NPS-3, NPS-4, VI2 55380	Low	B	Enterococcus	2018
VI-STJ-02	Hawksnest Bay	STJ-44B, NPS-3, NPS-4, VI255380	Low	B	Turbidity	2018
VI-STJ-03	Trunk Bay	STJ-44A, NPS-5	Low	A	Enterococcus	2018
VI-STJ-05	Cinnamon Bay	STJ-44C, NPS-6, NPS-7	Low	B	Enterococcus	2018
VI-STJ-19	Great Lameshur Bay	STJ-50, STJ-51, UVI-Supp	Low	B	pH	2014
VI-STJ-19	Great Lameshur Bay	STJ-50, STJ-51, UVI-Supp	Low	B	Phosphorus	2016

## VI. LISTING ACTION

The EPA released a guidance memorandum for developing the 2018 Integrated Water Quality Monitoring and Assessment Report that serves to supplement all previously-issued assessment guidance issued in 2006, 2008, 2010, 2012, 2014 and 2016. Waterbody assessment units are classified into one of five categories. Below are the categories DPNR used for 2018 assessments:

### Category 1

The assessment unit is placed in this category if it meets the water quality standards for the parameters that define support for both Primary Contact Recreation (PCR) & Aquatic Life Use Support (ALUS).

## **Category 2**

The assessment unit is placed in this category if it attains water quality standards for the parameters that define support for either PCR or ALUS but not all uses are supported.

## **Category 3**

The assessment unit is placed under the appropriate subcategory (3A, 3B, 3C, 3D) if insufficient or no data are available to determine if water quality standards are attained and any designated use is supported. *Note: The Virgin Islands considers insufficient data as anything less than eight points of monitoring data. Waters with less than eight points of monitoring data may be reviewed on a case-by-case basis if the limited data strongly suggests that water quality standards are exceeded, and the designated uses are impaired. Such waters may be eligible for inclusion on the 303(d) List.*

This category contains four distinct subcategories:

### ***Category 3A***

No data are available from any of the identified data sources for the assessment unit in question.

### ***Category 3B***

Insufficient Data are available from any of the identified data sources for the assessment unit in question. Insufficient data is defined as less than eight points of monitoring data. This category differs from Category 2 in that this condition must apply to all designated uses.

### ***Category 3C***

Inconclusive Data are available from any of the identified data sources for the assessment unit in question. This might include information from studies that do not directly provide information related to water quality standards.

### ***Category 3D***

Unreliable or low-quality data is available from any of the identified data sources for the assessment unit in question. Unreliable or low-quality data is defined as data sets that have significant gaps, obvious anomalies, etc.

## **Category 4**

Assessment units that are found to be partially or not supporting for one or both designated uses are placed in category 4 under the appropriate subcategory (4A, 4B, 4C), but does not require the development of a TMDL.

This category contains three distinct subcategories:

### ***Category 4A***

The assessment unit is placed in this category if it was previously listed on the 303(d) list and a TMDL has been established and approved by EPA.



#### ***Category 4B***

The assessment unit is placed into this category only if other pollution control requirements are expected to address all water-pollutant combinations and attain all water quality standards within a reasonable period of time. The Virgin Islands considers a reasonable period of time as being the time between reporting cycles. If the impairment is the result of a point source discharge, it is expected that the Territorial Pollution Discharge Elimination System (TPDES) program will take appropriate measures to control point source pollution. If the impairment is the result of non-point source pollution, DPNR will provide evidence that a pollution control measure is in place.

#### ***Category 4C***

The assessment unit is placed into this category if the impairment was not caused by a pollutant, but instead is caused by pollution. Assessment Units placed in Category 4C do not require the development of a TMDL. Pollution, as defined by the CWA is “the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water” (section 502(19)). In some cases, the pollution is caused by the presence of a pollutant and a TMDL is required. In other cases, pollution does not result from a pollutant and a TMDL is not required. These assessment units should be scheduled for monitoring to confirm that there continues to be no pollutant associated with the failure to meet the water quality standard and to support water quality management actions necessary to address the cause(s) of the impairment

#### **Category 5**

The assessment unit is placed into this category if water quality standards are exceeded and a TMDL must be established. Assessment units that are placed into Category 5 will be placed on the 2018 303(d) List.

### **VII. WATERBODY DELINEATION**

The US Virgin Islands has created a standard waterbody delineation that organizes the coastal waters of the Virgin Islands into assessment units. This delineation is based on (in order of consideration):

1. Legal limits of water quality classifications
2. Subwatershed boundaries
3. Shoreline geomorphology
4. Benthic geomorphology
5. Bathymetry
6. Benthic habitats
7. 305(d) listing and TMDLs
8. Management areas
9. 305(b) assessment

In the 2018 Integrated Report, these delineated assessment units have been grouped into categories. No assessment unit boundaries have changed since the 2016 assessment.

## **VIII. ASSESSMENT UNITS LISTED IN 2018**

**The following waterbody/pollutant combinations were listed as water quality impaired in previous cycles and remain listed in 2018 for the impairments specified below.**

Frederiksted Harbor (VI-STC-02) contains DPNR ambient monitoring stations: STC-28 Frederiksted Pier, STC-29 Frederiksted Public Beach and VI Beach Program monitoring station VI970611 F'sted (First Target). This assessment unit has remained listed for Turbidity.

Prosperity, nearshore (VI-STC-04) contains DPNR VI Beach Program monitoring station VI252619 Rainbow (Prosperity). This assessment unit has remained listed for Turbidity.

Sprat Hall Beach (VI-STC-06) contains DPNR ambient monitoring station STC-30 Sprat Hall Beach and VI Beach Program monitoring station VI645288 Sprat Hall. This assessment unit has remained listed for Enterococcus.

Cane Bay (VI-STC-12) contains VI Beach Program monitoring station VI201013 Cane Bay. This assessment unit has remained listed for Phosphorus and Turbidity.

Baron Bluff Subwatershed (VI-STC-13) contains DPNR ambient monitoring station STC-31 Davis Bay and VI Beach Program monitoring station VI398766 Davis Bay. This assessment unit has remained listed for Dissolved Oxygen and Turbidity.

Salt River Lagoon, Marina (VI-STC-16) contains DPNR ambient monitoring stations STC-33 Salt River Marina and STC-33C Salt River Lagoon, Marina. This assessment unit has remained listed for Enterococcus.

Salt River Bay (VI-STC-18) contains DPNR ambient monitoring stations STC-33A and B Salt River (Columbus Landing Beach) and VI Beach Program monitoring stations VI146901 Gentle Winds and VI558328 Columbus Landing. This assessment unit has remained listed for Dissolved Oxygen, Enterococcus, and Turbidity.

St. Croix-By-the-Sea (VI-STC-23) contains DPNR ambient monitoring station STC-34 St. Croix-By-the-Sea and VI Beach Program monitoring station VI738082 Pelican Cove. This assessment unit has remained listed for pH and Turbidity.

Christiansted Harbor (VI-STC-26) contains DPNR ambient monitoring stations STC-37 Christiansted Harbor Entrance West, STC-40 St. Croix Marine, STC-41 Gallows Bay, STC-42 Public Wharf, STC-43 Water Gut Storm Drain, STC-44 Protestant Cay Beach, STC-46 WAPA Intake, STC-47 Mill Harbor Condominium Beach, and VI Beach

Program monitoring station VI572166 Condo Row (Princess). This assessment unit has remained listed for pH and Turbidity.

Christiansted Harbor, East (VI-STC-29) contains DPNR ambient monitoring stations STC-1 Lagoon Recreational Beach, STC-39 Altona Lagoon Inlet and VI Beach Program monitoring station VI213332 New Fort Louise Augusta. This assessment unit has remained listed for pH and Turbidity.

Beauregard Bay (VI-STC-30) contains DPNR ambient monitoring stations STC-2 Ft. Louise Augusta Beach, STC-38 Christiansted Harbour Entrance-East and VI Beach Program monitoring station VI651587 Buccaneer. This assessment unit has remained listed for pH and Turbidity.

Punnett Bay (VI-STC-33) contains DPNR VI Beach Program monitoring station VI610321 Shoy's. This assessment unit has remained listed for Turbidity.

Green Cay Beach (VI-STC-36) contains DPNR VI Beach Program monitoring station VI563397 Chenay Bay Beach. This assessment unit has remained listed for Enterococcus and Turbidity.

Southgate Subwatershed, Offshore (VI-STC-37) contains DPNR ambient monitoring station STC-5 Green Cay Beach. This assessment unit has remained listed for Dissolved Oxygen, Enterococcus and Turbidity.

Teague Bay (VI-STC-39) contains DPNR ambient monitoring stations STC-8 Reef Club Beach, STC-9 St. Croix Yacht Club Beach, UVI Supplemental Site and VI Beach Program monitoring station VI381319 Teague Bay (Reef). This assessment unit has remained listed for pH and Turbidity.

Teague Bay Backreef (VI-STC-40) contains DPNR ambient monitoring station STC-10 Cramer's Park and VI Beach Program monitoring station VI351774 Cramer's Park. This assessment unit has remained listed for pH and Turbidity.

Turner Hole Backreef (VI-STC-47) contains VI Beach Program monitoring station VI297470 Grapetree Beach. This assessment unit has remained listed for Enterococci and Turbidity.

Bugby Hole Backreef (VI-STC-56) contains DPNR ambient monitoring stations STC-14A Halfpenny Bay - Manchenil, STC-14B Halfpenny Backreef and VI Beach Program monitoring station VI931289, Halfpenny. This assessment unit has remained listed for Enterococcus, pH and Turbidity.

Canegarden Bay (VI-STC-59) contains DPNR ambient monitoring station STC-15 Canegarden Bay. This assessment unit has remained listed for Dissolved Oxygen and Turbidity.

Hess Oil Virgin Islands Harbor (VI-STC-61) contains DPNR ambient monitoring stations STC-16 HOVENSA East Turning Basin, NW Corner and STC-17 HOVENSA West Turning Basin, NW Corner. This assessment unit has remained listed for Enterococcus and Turbidity.

Limetree Bay (VI-STC-62) contains DPNR ambient monitoring station STC-18 Limetree Bay Container Port. This assessment unit has remained listed for Dissolved Oxygen.

Martin-Marietta Alumina Harbor (VI-STC-63) contains DPNR ambient monitoring stations STC-19 Krause Lagoon Channel and STC-20 Alumina Plant Dock. This assessment unit has remained listed for Dissolved Oxygen.

Manning Bay/Estate Anguilla Beach (VI-STC-64) contains DPNR ambient monitoring station STC-23 Public Dump. This assessment unit has remained listed for Dissolved Oxygen.

HOVENSA, West (VI-STC-65) contains DPNR ambient monitoring stations STC-21 Spoils (Ruth) Island and STC-22A Treatment Plant (POTW) Outfall. This assessment unit has remained listed for Dissolved Oxygen.

Diamond Subwatershed, Offshore (VI-STC-75) contains DPNR ambient monitoring station STC-24B Rum Plant (VI Rum) Outfall. This assessment unit has remained listed for Dissolved Oxygen and Chronic Toxicity.

Long Point Bay (VI-STC-77) contains DPNR ambient monitoring station STC-25 Long Point. This assessment unit has remained listed for Dissolved Oxygen and Turbidity.

Good Hope Beach (VI-STC-79) contains DPNR ambient monitoring station STC-26. This assessment unit has remained listed for Dissolved Oxygen.

Sandy Point, Nearshore West (VI-STC-82) contains DPNR ambient monitoring station STC-27 Sandy Point Public Beach, and VI Beach Program monitoring stations VI896490 Dorsch Bay and VI907985 Stony Ground. This assessment unit has remained listed for Turbidity.

Caneel Bay (VI-STJ-01) contains DPNR ambient monitoring stations STJ-54 Caneel Bay, NPS monitoring stations NPS-1 Caneel Bay and VI Beach Program monitoring station VI658467 Caneel Beach. This assessment unit has remained listed for Dissolved Oxygen and Turbidity.

Coral Harbor (VI-STJ-13) contains DPNR ambient monitoring stations STJ-53 Coral Bay and STJ-56 Johnson Bay, NPS monitoring stations NPS-15 Coral Bay Dock, NPS-16 Johnson Bay, UVI Supplemental Site and VI Beach Program monitoring stations VI823989 Johnson's Bay. This assessment unit has remained listed for Dissolved Oxygen, Enterococcus, pH, Phosphorous and Turbidity.

Great Lameshur Bay (VI-STJ-19) contains DPNR ambient monitoring stations STJ-50, STJ-51, and UVI Supplemental Site. This assessment unit has remained listed for pH and Phosphorous.

Fish Bay (VI-STJ-23) contains DPNR ambient monitoring stations STJ-48 Fish Bay and NPS monitoring station NPS-22 Fish Bay. This assessment unit has remained listed for Dissolved Oxygen, pH, Phosphorous and Turbidity.

Rendezvous Bay subwatershed, offshore (VI-STJ-25) contains DPNR ambient monitoring station STJ-47 Rendezvous Bay, NPS monitoring station NPS-23 Rendezvous Bay, and VI Beach Program monitoring stations VI204627 Klain Bay and VI402599 Hart Bay. This assessment unit has remained listed for Turbidity.

Great Cruz Bay (VI-STJ-28) contains DPNR ambient monitoring stations STJ-45 Great Cruz Bay, NPS monitoring stations NPS-25 Great Cruz Bay and VI Beach Program monitoring station VI779192 Great Cruz Bay. This assessment unit has remained listed for pH and Turbidity.

Cruz Bay (VI-STJ-30) contains DPNR ambient monitoring stations STJ-43A Cruz Bay, North; STJ-43B Cruz Bay, South; STJ-43C Cruz Bay, North of Seaplane Ramp; STJ-43D Cruz Bay, Creek North; NPS-27 Cruz Bay (ferry dock); NPS-28 Cruz Bay (airplane ramp); NPS-29 Cruz Bay (NPS dock); and VI Beach Program monitoring station VI309453 Cruz Bay. This assessment unit has remained listed for Enterococcus, pH, Phosphorous and Turbidity.

Great Cruz Bay watershed, offshore (VI-STJ-31) contains DPNR VI Beach Program monitoring station VI456779 Frank Bay. This assessment unit has remained listed for Turbidity.

Southwest St. John, Offshore (VI-STJ-32) contains DPNR ambient monitoring station STJ-OFF4. This assessment unit has remained listed for Turbidity.

Botany Bay (VI-STT-01) contains DPNR ambient monitoring station STT-9 Botany Bay. This assessment unit has remained listed for Turbidity.

Stumpy Bay (VI-STT-02) contains DPNR ambient monitoring station STT-10 Stumpy Bay. This assessment unit has remained listed for Turbidity.

Santa Maria Bay (VI-STT-04) contains DPNR ambient monitoring station STT-11 Santa Maria Bay. This assessment unit has remained listed for Turbidity.

Caret Bay (VI-STT-05) contains DPNR ambient monitoring station STT-12 Caret Bay. This assessment unit has remained listed for Turbidity.

Dorothea (VI-STT-07) which contains DPNR ambient monitoring station STT-13 Dorothea. This assessment unit has remained listed for Dissolved Oxygen and Turbidity.

Hull Bay (VI-STT-08) contains DPNR ambient monitoring station STT-14 Hull Bay and VI Beach Program monitoring station VI616865 Hull Bay. This assessment unit has remained listed for pH and Turbidity.

Magen's Bay (VI-STT-10) contains DPNR ambient monitoring stations STT-15, STT-15A, STT-15B Magens Bay and VI Beach Program monitoring station VI672756 Magen's Bay. This assessment unit has remained listed for Enterococcus, pH and Turbidity.

Mandahl Bay (Marina) (VI-STT-13) contains DPNR ambient monitoring stations STT-16B Mandahl Bay Entrance, STT-16C Mandahl Point Entrance. This assessment unit has remained listed for Dissolved Oxygen, pH and Turbidity.

Mandahl Bay Subwatershed, Offshore (VI-STT-17) contains DPNR ambient monitoring stations STT-16A Mandahl Bay, STT-18 Coki Point Bay and VI Beach Program monitoring station VI577932 Coki Point. This assessment unit has remained listed for Enterococcus and Turbidity.

Water Bay (VI-STT-18) contains DPNR ambient monitoring station STT-19 Water Bay and VI Beach Program monitoring station VI591668 Water Bay. This assessment unit has remained listed for pH.

Smith Bay (VI-STT-19) contains DPNR ambient monitoring station STT-20 Smith Bay and VI Beach Program monitoring station VI431925 Lindquist Beach. This assessment unit has remained listed for Turbidity.

St. John Bay (VI-STT-21) contains DPNR ambient monitoring station STT-21A St. John Bay and VI Beach Program monitoring station VI327776 Sapphire Beach. This assessment unit has remained listed for Turbidity.

Red Bay (VI-STT-22) contains DPNR ambient monitoring station STT-21B Red Bay. This assessment unit has remained listed for Dissolved Oxygen and Turbidity.

Vessup Bay (VI-STT-23) contains DPNR ambient monitoring station STT-22B Vessup Bay. This assessment unit has remained listed for Enterococcus and Turbidity.

Red Hook Bay (VI-STT-24) contains DPNR ambient monitoring station STT-22A Red Hook Bay and VI Beach Program monitoring station VI764950 Vessup Bay. This assessment unit has remained listed for Turbidity.

Great Bay (VI-STT-25) contains DPNR ambient monitoring station STT-23 Great Bay and VI Beach Program monitoring station VI505006 Bluebeards Beach. This assessment unit has remained listed for Turbidity.

Cowpet Bay (VI-STT-28) contains DPNR ambient monitoring stations STT-24 Cowpet Bay, STT-24A Cowpet Bay West. This assessment unit has remained listed for Turbidity.

Nazareth Bay (VI-STT-31) contains VI Beach Program monitoring station VI389422 Secret Harbor. This assessment unit has remained listed for Turbidity.

Benner Bay Lagoon Marina (VI-STT-34) contains DPNR ambient monitoring stations STT-27D Mangrove Lagoon, Near La Vida Marina and STT-27E Mangrove Lagoon, Near Compass Point. This assessment unit has remained listed for Dissolved Oxygen, Enterococcus and Turbidity.

Mangrove Lagoon (VI-STT-35) contains DPNR ambient monitoring stations STT-27A Mangrove Lagoon, Near Treatment Plant, STT-27B Mangrove Lagoon, Off Sanitary Landfill (East of Eco-tours) and STT-27C Mangrove Lagoon, Near Tropical Marine Fuel Dock. This assessment unit has remained listed for Temperature, Enterococcus and Turbidity.

Frenchman Bay Subwatershed East (VI-STT-36) contains DPNR ambient monitoring stations STT-28A Bovoni Bay, STT-28B Bolongo Bay and VI Beach Program monitoring station VI951607 Bolongo Bay. This assessment unit has remained listed for Phosphorous and Turbidity.

Frenchman Bay (VI-STT-37) contains DPNR ambient monitoring station STT-29A Frenchman Bay and VI Beach Program monitoring station VI891065 Frenchman's Bay. This assessment unit has remained listed for Enterococcus and Turbidity.

Limetree Bay (VI-STT-38) contains DPNR ambient monitoring station STT-29B Limetree Bay and VI Beach Program monitoring station VI776527 Limetree Bay. This assessment unit has remained listed for Turbidity.

Morningstar Bay (VI-STT-39) contains DPNR ambient monitoring station STT-30 Morningstar Bay and VI Beach Program monitoring station VI937158 Morningstar Bay. This assessment unit has remained listed for Enterococcus.

St. Thomas Harbor, Inner (VI-STT-43) contains DPNR ambient monitoring stations STT-31B Hassel Island, Off Navy Dock, STT-31C Hassel Island, Careening Cove, STT-32A Long Bay, Near South Dolphin, STT-32B Long Bay, Northeast Corner, STT-33A Long Bay, Off Outfall, STT-33B Long Bay, Off Outfall, STT-34 Long Bay, Off Pump Station, STT-35 Groden Bay, STT-36 St. Thomas Harbor, North of Coast Guard Dock, STT-37 St. Thomas Harbor, Cay Bay and STT-38 Haulover Cut. This assessment unit has remained listed for Turbidity.

Gregerie Channel (VI-STT-45) contains DPNR ambient monitoring stations STT-1 Crown Bay, Near Outfall, STT-39 Water Isle, East Gregorie Channel. This assessment unit has remained listed for Turbidity.

Sprat Bay (VI-STT-46) contains DPNR ambient monitoring station STT-42 Water Island Sprat Bay. This assessment unit has remained listed for Turbidity.

Hassel Island at Haulover Cut to Regis Point (VI-STT-47) contains DPNR ambient monitoring stations STT-2 Crown Bay, Near Tamarind Outlet and STT-3 Subbase. This assessment unit has remained listed for Turbidity.

Druif Bay (VI-STT-49) contains DPNR ambient monitoring station STT-40 Water Isle Hotel Beach. This assessment unit has remained listed for Turbidity.

Flamingo Bay (VI-STT-50) contains DPNR ambient monitoring station STT-41 Water Island Flamingo Bay. This assessment unit has remained listed for Turbidity.

Krum Bay (VI-STT-51) contains DPNR ambient monitoring station STT-4 Krum Bay. This assessment unit has remained listed for Turbidity.

Lindbergh Bay (VI-STT-52) contains DPNR ambient monitoring stations STT-5A Lindbergh Bay East, STT-5B Lindbergh Bay West and VI Beach Program monitoring station VI514102 Lindberg Bay. This assessment unit has remained listed for Turbidity.

Cyril E. King Airport Subwatershed, Offshore (VI-STT-53) contains DPNR ambient monitoring station STT-6C S.W. Road, Near Red Point Outfall. This assessment unit has remained listed for Enterococcus and Turbidity.

Perseverance Bay, Offshore (VI-STT-54) contains DPNR ambient monitoring station STT-6B College Cove. This assessment unit has remained listed for Turbidity.

Brewers Bay (VI-STT-55) contains DPNR ambient monitoring station STT-7A Brewers Bay and VI Beach Program monitoring station VI293962 Brewer's Bay. This assessment unit has remained listed for Turbidity.

**The following waterbody/pollutant combinations are new to the 303(d) list and/or have new associated monitoring stations with impairments.**

Frederiksted Harbor (VI-STC-02) contains DPNR ambient monitoring stations: STC-28 Frederiksted Pier, STC-29 Frederiksted Public Beach and VI Beach Program monitoring station VI970611 F'sted (Fst. Target). This assessment unit has now been listed for Enterococcus.

Prosperity, nearshore (VI-STC-04) contains DPNR VI Beach Program monitoring station VI252619 Rainbow (Prosperity). This assessment unit has now been listed for Enterococcus.

Cane Bay (VI-STC-12) contains VI Beach Program monitoring station VI201013 Cane Bay. This assessment unit has now been listed for Dissolved Oxygen and Enterococcus.

Beauregard Bay (VI-STC-30) contains DPNR ambient monitoring stations STC-2 Ft. Louise Augusta Beach, STC-38 Christiansted Harbour Entrance-East and VI Beach



Program monitoring station VI651587 Buccaneer. This assessment unit has now been listed for Enterococcus and Phosphorus.

Buccaneer Beach (VI-STC-31) contains DPNR ambient monitoring station STC-3 Buccaneer Hotel. This assessment unit has now been listed for Enterococcus.

Punnett Bay (VI-STC-33) contains DPNR VI Beach Program monitoring station VI610321 Shoy's. This assessment unit has now been listed for Enterococcus.

Teague Bay Backreef (VI-STC-40) contains DPNR ambient monitoring station STC-10 Cramer's Park and VI Beach Program monitoring station VI351774 Cramer's Park. This assessment unit has now been listed for Enterococcus.

Buck Island Backreef (VI-STC-41) contains DPNR ambient monitoring stations STC-6 Buck Island Beach and STC-7 Buck Island Anchorage. This assessment unit has now been listed for Temperature.

HOVENSA subwatershed, Offshore (VI-STC-66) contains DPNR ambient monitoring station STC-22A Treatment Plant (POTW) Outfall. This assessment unit has now been listed for Temperature.

Hawksnest Bay (VI-STJ-02) contains DPNR ambient monitoring stations STJ-44B Hawksnest Bay, NPS-3 Hawksnest (middle beach), NPS-4 Hawksnest (Gibney Beach), and VI Beach Program monitoring station VI255380 Oppenheimer. This assessment unit has now been listed for Enterococcus and Turbidity.

Trunk Bay (VI-STJ-03) contains DPNR ambient monitoring stations STJ-44A Trunk Bay and NPS monitoring station NPS-5 Trunk Bay. This assessment unit has now been listed for Enterococcus.

Cinnamon Bay (VI-STJ-05) contains DPNR ambient monitoring stations STJ 44C Cinnamon Bay and NPS monitoring stations NPS 6 Peter Bay & NPS 7 Cinnamon Bay. This assessment unit has now been listed for Enterococcus.

Coral Bay (VI-STJ-16) contains DPNR ambient monitoring stations STJ-58 Privateer Bay and NPS monitoring station NPS-12 Long Point. This assessment unit has now been listed for Enterococcus.

Great Cruz Bay (VI-STJ-28) contains DPNR ambient monitoring stations STJ-45 Great Cruz Bay, NPS monitoring stations NPS-25 Great Cruz Bay and VI Beach Program monitoring station VI779192 Great Cruz Bay. This assessment unit has now been listed for Enterococcus.

Great Cruz Bay watershed, offshore (VI-STJ-31) contains DPNR VI Beach Program monitoring station VI456779 Frank Bay. This assessment unit has now been listed for Enterococcus.

Hull Bay (VI-STT-08) contains DPNR ambient monitoring station STT-14 Hull Bay and VI Beach Program monitoring station VI616865 Hull Bay. This assessment unit has now been listed for Enterococcus.

Mandahl Bay (Marina) (VI-STT-13) contains DPNR ambient monitoring stations STT-16B Mandahl Bay Entrance, STT-16C Mandahl Point Entrance. This assessment unit has now been listed for Phosphorous.

Water Bay (VI-STT-18) contains DPNR ambient monitoring station STT-19 Water Bay and VI Beach Program monitoring station VI591668 Water Bay. This assessment unit has now been listed for Enterococcus.

Smith Bay (VI-STT-19) contains DPNR ambient monitoring station STT-20 Smith Bay and VI Beach Program monitoring station VI431925 Lindquist Beach. This assessment unit has now been listed for Enterococcus.

St. John Bay (VI-STT-21) contains DPNR ambient monitoring station STT-21A St. John Bay and VI Beach Program monitoring station VI327776 Sapphire Beach. This assessment unit has now been listed for Enterococcus.

Red Bay (VI-STT-22) contains DPNR ambient monitoring station STT-21B Red Bay. This assessment unit has now been listed for Enterococcus.

Red Hook Bay (VI-STT-24) contains DPNR ambient monitoring station STT-22A Red Hook Bay and VI Beach Program monitoring station VI764950 Vessup Bay. This assessment unit has now been listed for Enterococcus.

Great Bay (VI-STT-25) contains DPNR ambient monitoring station STT-23 Great Bay and VI Beach Program monitoring station VI505006 Bluebeards Beach. This assessment unit has now been listed for Enterococcus.

Cowpet Bay (VI-STT-28) contains DPNR ambient monitoring stations STT-24 Cowpet Bay, STT-24A Cowpet Bay West. This assessment unit has now been listed for Enterococcus.

Nazareth Bay (VI-STT-31) contains VI Beach Program monitoring station VI389422 Secret Harbor. This assessment unit has now been listed for Enterococcus.

Frenchman Bay Subwatershed East (VI-STT-36) contains DPNR ambient monitoring stations STT-28A Bovoni Bay, STT-28B Bolongo Bay and VI Beach Program monitoring station VI951607 Bolongo Bay. This assessment unit has now been listed for Enterococcus.

Limetree Bay (VI-STT-38) contains DPNR ambient monitoring station STT-29B Limetree Bay and VI Beach Program monitoring station VI776527 Limetree Bay. This assessment unit has now been listed for Enterococcus.

Gregerie Channel (VI-STT-45) contains DPNR ambient monitoring stations STT-1 Crown Bay, Near Outfall, STT-39 Water Isle, East Gregorie Channel. This assessment unit has now been listed for Enterococcus and Turbidity.

Sprat Bay (VI-STT-46) contains DPNR ambient monitoring station STT-42 Water Island Sprat Bay. This assessment unit has now been listed for Enterococcus.

Hassel Island at Haulover Cut to Regis Point (VI-STT-47) contains DPNR ambient monitoring stations STT-2 Crown Bay, Near Tamarind Outlet and STT-3 Subbase. This assessment unit has now been listed for Enterococcus.

Druif Bay (VI-STT-49) contains DPNR ambient monitoring station STT-40 Water Isle Hotel Beach. This assessment unit has now been listed for Enterococcus.

Flamingo Bay (VI-STT-50) contains DPNR ambient monitoring station STT-41 Water Island Flamingo Bay. This assessment unit has now been listed for Enterococcus.

Krum Bay (VI-STT-51) contains DPNR ambient monitoring station STT-4 Krum Bay. This assessment unit has now been listed for Enterococcus.

Lindbergh Bay (VI-STT-52) contains DPNR ambient monitoring stations STT-5A Lindbergh Bay East, STT-5B Lindbergh Bay West and VI Beach Program monitoring station VI514102 Lindberg Bay. This assessment unit has now been listed for Enterococcus.

Perseverance Bay, Offshore (VI-STT-54) contains DPNR ambient monitoring station STT-6B College Cove. This assessment unit has now been listed for Enterococcus.

Brewers Bay (VI-STT-55) contains DPNR ambient monitoring station STT-7A Brewers Bay and VI Beach Program monitoring station VI293962 Brewer's Bay. This assessment unit has now been listed for Enterococcus.

## **IX. HIGH PRIORITY WATERS**

In this reporting cycle, DPNR-DEP has prioritized waters based on whether the impairment is likely due to human or physical factors, the size of the assessment unit, and the proximity of impaired assessment units to one another. DEP intends to document the prioritization process, factors assessed and their ranking, prior to the 2020 303(d) list.

High priority assessment units are scheduled for TMDLs to be established in the year listed as follows:

<b>AU ID</b>	<b>AU Name</b>	<b>Priority</b>	<b>Impairment</b>	<b>Year for TMDL in place</b>	<b>Reason for Impairment</b>
<b>VI-STC-36</b>	Green Cay Beach	High	Enterococcus	2022	Erosion and sedimentation; package plant or other permitted small flows discharges
<b>VI-STC-36</b>	Green Cay Beach	High	Turbidity	2022	Erosion and sedimentation; package plant or other permitted small flows discharges
<b>VI-STC-37</b>	Southgate Subwatershed, Offshore	High	Dissolved Oxygen	2019	Marina/boating sanitary on-vessel discharges; non-point source; marina boat maintenance
<b>VI-STC-37</b>	Southgate Subwatershed, Offshore	High	Enterococcus	2019	Marina/boating sanitary on-vessel discharges; non-point source; marina boat maintenance
<b>VI-STC-37</b>	Southgate Subwatershed, Offshore	High	Turbidity	2019	Marina/boating sanitary on-vessel discharges; non-point source; marina boat maintenance
<b>VI-STJ-13</b>	Coral Harbor	High	Dissolved Oxygen	2019	Source unknown
<b>VI-STJ-13</b>	Coral Harbor	High	Enterococcus	2019	Source unknown
<b>VI-STJ-13</b>	Coral Harbor	High	pH	2019	Source unknown
<b>VI-STJ-13</b>	Coral Harbor	High	Phosphorus	2019	Source unknown
<b>VI-STJ-13</b>	Coral Harbor	High	Turbidity	2019	Source unknown
<b>VI-STJ-16</b>	Coral Bay	High	Enterococcus	2019	On-site treatment systems (septic systems and similar decentralized systems); erosion and sedimentation; urban runoff/storm sewers

## X. MEDIUM PRIORITY WATERS

The following assessment units have been itemized as medium priority assessment units:

<b>AU ID</b>	<b>AU Name</b>	<b>Priority</b>	<b>Impairment</b>	<b>Year for TMDL</b>	<b>Reason for Impairment</b>
<b>VI-STC-12</b>	Cane Bay	Medium	Dissolved Oxygen	2022	Erosion and sedimentation; urban runoff/storm sewers
<b>VI-STC-12</b>	Cane Bay	Medium	Enterococcus	2022	Erosion and sedimentation; urban runoff/storm sewers
<b>VI-STC-12</b>	Cane Bay	Medium	Phosphorus	2022	Erosion and sedimentation
<b>VI-STC-12</b>	Cane Bay	Medium	Turbidity	2022	Erosion and sedimentation
<b>VI-STC-13</b>	Baron Bluff, subwatershed	Medium	Dissolved Oxygen	2022	Impacts from resort areas
<b>VI-STC-13</b>	Baron Bluff, subwatershed	Medium	Enterococcus	2022	Impacts from resort areas
<b>VI-STC-13</b>	Baron Bluff, subwatershed	Medium	Turbidity	2022	Impacts from resort areas
<b>VI-STC-23</b>	St. Croix-By-the-Sea	Medium	pH	2023	Erosion and sedimentation; urban runoff/storm sewers
<b>VI-STC-23</b>	St. Croix-By-the-Sea	Medium	Turbidity	2023	Erosion and sedimentation; urban runoff/storm sewers
<b>VI-STC-30</b>	Beauregard Bay	Medium	Enterococcus	2023	Erosion and sedimentation; urban runoff/storm sewers; marina/boating sanitary on-vessel discharges
<b>VI-STC-30</b>	Beauregard Bay	Medium	Phosphorus	2023	Erosion and sedimentation; urban runoff/storm sewers; on-site treatment systems (septic systems and similar decentralized systems)
<b>VI-STC-30</b>	Beauregard Bay	Medium	pH	2023	Erosion and sedimentation; urban runoff/storm sewers
<b>VI-STC-30</b>	Beauregard Bay	Medium	Transparency / Clarity	2023	Erosion and sedimentation; urban runoff/storm sewers
<b>VI-STC-30</b>	Beauregard Bay	Medium	Turbidity	2023	Erosion and sedimentation; urban runoff/storm sewers
<b>VI-STC-59</b>	Canegarden Bay	Medium	Dissolved Oxygen	2022	Erosion and sedimentation
<b>VI-STC-59</b>	Canegarden Bay	Medium	Phosphorus	2022	Erosion and sedimentation
<b>VI-STC-59</b>	Canegarden Bay	Medium	Turbidity	2022	Erosion and sedimentation
<b>VI-STJ-23</b>	Fish Bay	Medium	Dissolved Oxygen	2019	Source unknown

<b>AU ID</b>	<b>AU Name</b>	<b>Priority</b>	<b>Impairment</b>	<b>Year for TMDL</b>	<b>Reason for Impairment</b>
<b>VI-STJ-23</b>	Fish Bay	Medium	pH	2019	Source unknown
<b>VI-STJ-23</b>	Fish Bay	Medium	Phosphorus	2019	Source unknown
<b>VI-STJ-23</b>	Fish Bay	Medium	Turbidity	2019	Source unknown
<b>VI-STJ-28</b>	Great Cruz Bay	Medium	Dissolved Oxygen	2023	Erosion and sedimentation; urban runoff/storm sewers
<b>VI-STJ-28</b>	Great Cruz Bay	Medium	Enterococcus	2023	On-site treatment systems (septic systems and similar decentralized systems); erosion and sedimentation; urban runoff/storm sewers
<b>VI-STJ-28</b>	Great Cruz Bay	Medium	pH	2023	Erosion and sedimentation; urban runoff/storm sewers
<b>VI-STJ-28</b>	Great Cruz Bay	Medium	Turbidity	2023	Illegal dumps or other inappropriate waste disposal; other marina/boating on-vessel discharges; other recreational pollution sources; non-point source; on-site treatment systems (septic systems and similar decentralized systems)
<b>VI-STT-08</b>	Hull Bay	Medium	Dissolved Oxygen	2023	Other recreational pollution sources; erosion and sedimentation; urban runoff/storm sewers
<b>VI-STT-08</b>	Hull Bay	Medium	Enterococcus	2023	Other recreational pollution sources; on-site treatment systems (septic systems and similar decentralized systems); erosion and sedimentation; urban runoff/storm sewers
<b>VI-STT-08</b>	Hull Bay	Medium	pH	2023	Other marina/boating on-vessel discharges
<b>VI-STT-08</b>	Hull Bay	Medium	Turbidity	2023	Other marina/boating on-vessel discharges; other recreational pollution sources
<b>VI-STT-10</b>	Magen's Bay	Medium	Dissolved Oxygen	2023	2023
<b>VI-STT-10</b>	Magen's Bay	Medium	Enterococcus	2023	2023
<b>VI-STT-10</b>	Magen's Bay	Medium	pH	2023	2023

<b>AU ID</b>	<b>AU Name</b>	<b>Priority</b>	<b>Impairment</b>	<b>Year for TMDL</b>	<b>Reason for Impairment</b>
<b>VI-STT-10</b>	Magen's Bay	Medium	Turbidity	2023	Highway/road/bridge runoff (non-construction related); highways, roads, bridges, infrastructure (new construction); other recreational pollution sources; changes in tidal circulation/flushing; on-site treatment systems (septic systems and similar decentralized systems)
<b>VI-STT-18</b>	Water Bay	Medium	Dissolved Oxygen	2024	Highway/road/bridge runoff (non-construction related); highways, roads, bridges, infrastructure (new construction); other recreational pollution sources; changes in tidal circulation/flushing; on-site treatment systems (septic systems and similar decentralized systems)
<b>VI-STT-18</b>	Water Bay	Medium	Enterococcus	2024	Highway/road/bridge runoff (non-construction related); highways, roads, bridges, infrastructure (new construction); other recreational pollution sources; changes in tidal circulation/flushing; on-site treatment systems (septic systems and similar decentralized systems); source unknown
<b>VI-STT-18</b>	Water Bay	Medium	pH	2024	Highway/road/bridge runoff (non-construction related); highways, roads, bridges, infrastructure (new construction); source unknown
<b>VI-STT-19</b>	Smith Bay	Medium	Dissolved Oxygen	2024	Erosion and sedimentation; urban runoff/storm sewers
<b>VI-STT-19</b>	Smith Bay	Medium	Enterococcus	2024	On-site treatment systems (septic systems and similar decentralized systems); erosion and sedimentation; urban runoff/storm sewers
<b>VI-STT-19</b>	Smith Bay	Medium	Turbidity	2024	On-site treatment systems (septic systems and similar decentralized systems); erosion and sedimentation; urban runoff/storm sewers
<b>VI-STT-21</b>	St. John Bay	Medium	Dissolved Oxygen	2024	Urban runoff/storm sewers; erosion and sedimentation;
<b>VI-STT-21</b>	St. John Bay	Medium	Enterococcus	2024	Urban runoff/storm sewers; erosion and sedimentation; on-site treatment systems (septic systems

<b>AU ID</b>	<b>AU Name</b>	<b>Priority</b>	<b>Impairment</b>	<b>Year for TMDL</b>	<b>Reason for Impairment</b>
					and similar decentralized systems)
<b>VI-STT-21</b>	St. John Bay	Medium	Turbidity	2024	Urban runoff/storm sewers; erosion and sedimentation; source unknown
<b>VI-STT-25</b>	Great Bay	Medium	Dissolved Oxygen	2024	Other marina/boating on-vessel discharges; urban runoff/storm sewers
<b>VI-STT-25</b>	Great Bay	Medium	Enterococcus	2024	Other marina/boating on-vessel discharges; urban runoff/storm sewers
<b>VI-STT-25</b>	Great Bay	Medium	Turbidity	2024	Internal nutrient recycling; other marina/boating on-vessel discharges
<b>VI-STT-34</b>	Benner Bay Lagoon Marina	Medium	Dissolved Oxygen	2019	Highway/road/bridge runoff (non-construction related); discharges from municipal separate storm sewer systems (ms4); other marina/boating on-vessel discharges; sanitary sewer overflows (collection system failures); changes in tidal circulation/flushing
<b>VI-STT-34</b>	Benner Bay Lagoon Marina	Medium	Enterococcus	2019	Discharges from municipal separate storm sewer systems (ms4); other marina/boating on-vessel discharges; sanitary sewer overflows (collection system failures); changes in tidal circulation/flushing
<b>VI-STT-34</b>	Benner Bay Lagoon Marina	Medium	Turbidity	2019	Highway/road/bridge runoff (non-construction related); changes in tidal circulation/flushing
<b>VI-STT-35</b>	Mangrove Lagoon	Medium	Enterococcus	2019	Discharges from municipal separate storm sewer systems (ms4); other marina/boating on-vessel discharges; changes in tidal circulation/flushing; highway/road/bridge runoff (non-construction related)
<b>VI-STT-35</b>	Mangrove Lagoon	Medium	Temperature	2019	Discharges from municipal separate storm sewer systems (ms4); other marina/boating on-vessel discharges; changes in tidal circulation/flushing; highway/road/bridge runoff (non-construction related)



<b>AU ID</b>	<b>AU Name</b>	<b>Priority</b>	<b>Impairment</b>	<b>Year for TMDL</b>	<b>Reason for Impairment</b>
<b>VI-STT-35</b>	Mangrove Lagoon	Medium	Turbidity	2019	Discharges from municipal separate storm sewer systems (ms4); other marina/boating on-vessel discharges; changes in tidal circulation/flushing; highway/road/bridge runoff (non-construction related)
<b>VI-STT-36</b>	Frenchman Bay Subwatershed East	Medium	Enterococcus	2024	Erosion and sedimentation
<b>VI-STT-36</b>	Frenchman Bay Subwatershed East	Medium	Phosphorus	2024	Erosion and sedimentation
<b>VI-STT-36</b>	Frenchman Bay Subwatershed East	Medium	Turbidity	2024	Erosion and sedimentation
<b>VI-STT-37</b>	Frenchman Bay	Medium	Dissolved Oxygen	2024	Impacts from resort areas; other recreational pollution sources
<b>VI-STT-37</b>	Frenchman Bay	Medium	Enterococcus	2024	Impacts from resort areas; other recreational pollution sources
<b>VI-STT-37</b>	Frenchman Bay	Medium	Turbidity	2024	Impacts from resort areas; other recreational pollution sources
<b>VI-STT-38</b>	Limetree Bay	Medium	Dissolved Oxygen	2024	On-site treatment systems (septic systems and similar decentralized systems); highways, roads, bridges, infrastructure (new construction);
<b>VI-STT-38</b>	Limetree Bay	Medium	Enterococcus	2024	On-site treatment systems (septic systems and similar decentralized systems); highways, roads, bridges, infrastructure (new construction); erosion from derelict land (barren land)
<b>VI-STT-38</b>	Limetree Bay	Medium	Turbidity	2024	On-site treatment systems (septic systems and similar decentralized systems); highways, roads, bridges, infrastructure (new construction); erosion from derelict land (barren land)
<b>VI-STT-39</b>	Morningstar Bay	Medium	Enterococcus	2024	Impacts from resort areas; other recreational pollution sources
<b>VI-STT-39</b>	Morningstar Bay	Medium	Turbidity	2024	Impacts from resort areas; other recreational pollution sources

<b>AU ID</b>	<b>AU Name</b>	<b>Priority</b>	<b>Impairment</b>	<b>Year for TMDL</b>	<b>Reason for Impairment</b>
<b>VI-STT-40</b>	Pacquereau Bay	Medium	Turbidity	2024	Highway/road/bridge runoff (non-construction related)

## **XI. TMDL SCHEDULE**

DPNR-DEP has developed a schedule for completion of TMDLs for several waters on the 2018 303(d) list although not required by EPA regulations. TMDL development for high priority assessment units are detailed under Section IX of this document; while, medium priority assessment units are detailed under Section X above.

**Low priority assessment units are listed and/or scheduled as follows:**

<b>AU ID</b>	<b>AU Name</b>	<b>Priority</b>	<b>Impairment</b>	<b>Tentative Year of TMDL Completion</b>
<b>VI-STC-02</b>	Frederiksted Harbor	Low	Dissolved Oxygen	2025
<b>VI-STC-02</b>	Frederiksted Harbor	Low	Enterococcus	2025
<b>VI-STC-02</b>	Frederiksted Harbor	Low	Turbidity	2025
<b>VI-STC-04</b>	Prosperity, nearshore	Low	Enterococcus	2025
<b>VI-STC-04</b>	Prosperity, nearshore	Low	Turbidity	2025
<b>VI-STC-06</b>	Sprat Hall Beach	Low	Dissolved Oxygen	2025
<b>VI-STC-06</b>	Sprat Hall Beach	Low	Enterococcus	2025
<b>VI-STC-06</b>	Sprat Hall Beach	Low	Phosphorus	2025
<b>VI-STC-06</b>	Sprat Hall Beach	Low	Turbidity	2025
<b>VI-STC-16</b>	Salt River Lagoon, Marina	Low	Enterococcus	2019
<b>VI-STC-16</b>	Salt River Lagoon, Marina	Low	Turbidity	2019
<b>VI-STC-18</b>	Salt River Bay	Low	Dissolved Oxygen	2019
<b>VI-STC-18</b>	Salt River Bay	Low	Enterococcus	2019
<b>VI-STC-18</b>	Salt River Bay	Low	Turbidity	2019
<b>VI-STC-24</b>	Long Reef Backreef, west	Low	Enterococcus	2025
<b>VI-STC-26</b>	Christiansted Harbor	Low	pH	2025
<b>VI-STC-26</b>	Christiansted Harbor	Low	Turbidity	2025

<b>VI-STC-29</b>	Christiansted Harbor, East	Low	Dissolved Oxygen	2025
<b>VI-STC-29</b>	Christiansted Harbor, East	Low	Enterococcus	2025
<b>VI-STC-29</b>	Christiansted Harbor, East	Low	pH	2025
<b>VI-STC-29</b>	Christiansted Harbor, East	Low	Turbidity	2025
<b>VI-STC-31</b>	Buccaneer Beach	Low	Dissolved Oxygen	2032
<b>VI-STC-31</b>	Buccaneer Beach	Low	Enterococcus	2032
<b>VI-STC-33</b>	Punnett Bay	Low	Enterococcus	2029
<b>VI-STC-33</b>	Punnett Bay	Low	Turbidity	2029
<b>VI-STC-39</b>	Teague Bay	Low	Dissolved Oxygen	2027
<b>VI-STC-39</b>	Teague Bay	Low	pH	2027
<b>VI-STC-39</b>	Teague Bay	Low	Turbidity	2027
<b>VI-STC-40</b>	Teague Bay Backreef	Low	Enterococcus	2027
<b>VI-STC-40</b>	Teague Bay Backreef	Low	pH	2027
<b>VI-STC-40</b>	Teague Bay Backreef	Low	Turbidity	2027
<b>VI-STC-41</b>	Buck Island Backreef	Low	Temperature	2031
<b>VI-STC-46</b>	Grapetree Bay	Low	Dissolved Oxygen	2029
<b>VI-STC-47</b>	Turner Hole Backreef	Low	Enterococcus	2029
<b>VI-STC-47</b>	Turner Hole Backreef	Low	Turbidity	2029
<b>VI-STC-56</b>	Bugby Hole Backreef	Low	Enterococcus	2031
<b>VI-STC-56</b>	Bugby Hole Backreef	Low	pH	2031
<b>VI-STC-56</b>	Bugby Hole Backreef	Low	Phosphorus	2031
<b>VI-STC-56</b>	Bugby Hole Backreef	Low	Turbidity	2031
<b>VI-STC-61</b>	Hess Oil Virgin Islands Harbor	Low	Dissolved Oxygen	2031
<b>VI-STC-61</b>	Hess Oil Virgin Islands Harbor	Low	Enterococcus	2031
<b>VI-STC-61</b>	Hess Oil Virgin Islands Harbor	Low	Phosphorus	2031
<b>VI-STC-61</b>	Hess Oil Virgin Islands Harbor	Low	Temperature	2031

<b>VI-STC-61</b>	Hess Oil Virgin Islands Harbor	Low	Turbidity	2031
<b>VI-STC-62</b>	Limetree Bay	Low	Dissolved Oxygen	2031
<b>VI-STC-63</b>	Martin-Marietta Alumina Harbor	Low	Dissolved Oxygen	2031
<b>VI-STC-64</b>	Manning Bay/Estate Anguilla Beach	Low	Dissolved Oxygen	2031
<b>VI-STC-64</b>	Manning Bay/Estate Anguilla Beach	Low	Phosphorus	2031
<b>VI-STC-64</b>	Manning Bay/Estate Anguilla Beach	Low	Turbidity	2031
<b>VI-STC-65</b>	HOVENSA West	Low	Enterococcus	2031
<b>VI-STC-65</b>	HOVENSA West	Low	Dissolved Oxygen	2031
<b>VI-STC-66</b>	Hovensa subwatershed, offshore	Low	Temperature	2031
<b>VI-STC-75</b>	Diamond Subwatershed, Offshore	Low	Dissolved Oxygen	2027
<b>VI-STC-75</b>	Diamond Subwatershed, Offshore	Low	Enterococcus	2027
<b>VI-STC-75</b>	Diamond Subwatershed, Offshore	Low	Phosphorus	2027
<b>VI-STC-75</b>	Diamond Subwatershed, Offshore	Low	Transparency / Clarity	2027
<b>VI-STC-75</b>	Diamond Subwatershed, Offshore	Low	Chronic Toxicity	2027
<b>VI-STC-75</b>	Diamond Subwatershed, Offshore	Low	Turbidity	2027
<b>VI-STC-76</b>	Carlton Beach	Low	Dissolved Oxygen	2027
<b>VI-STC-77</b>	Long Point Bay	Low	Dissolved Oxygen	2027
<b>VI-STC-77</b>	Long Point Bay	Low	Turbidity	2027
<b>VI-STC-76</b>	Carlton Beach	Low	Turbidity	2027
<b>VI-STC-79</b>	Good Hope Beach	Low	Dissolved Oxygen	2027
<b>VI-STC-79</b>	Good Hope Beach	Low	Enterococcus	2027
<b>VI-STC-82</b>	Sandy Point, Nearshore West	Low	Dissolved Oxygen	2027
<b>VI-STC-82</b>	Sandy Point, Nearshore West	Low	Enterococcus	2027
<b>VI-STC-82</b>	Sandy Point, Nearshore West	Low	Turbidity	2027
<b>VI-STJ-01</b>	Caneel Bay	Low	Dissolved Oxygen	2027
<b>VI-STJ-01</b>	Caneel Bay	Low	Turbidity	2027

<b>VI-STJ-02</b>	Hawksnest Bay	Low	Dissolved Oxygen	2025
<b>VI-STJ-02</b>	Hawksnest Bay	Low	Enterococcus	2025
<b>VI-STJ-02</b>	Hawksnest Bay	Low	Turbidity	2025
<b>VI-STJ-03</b>	Trunk Bay	Low	Dissolved Oxygen	2025
<b>VI-STJ-03</b>	Trunk Bay	Low	Enterococcus	2025
<b>VI-STJ-05</b>	Cinnamon Bay	Low	Dissolved Oxygen	2025
<b>VI-STJ-05</b>	Cinnamon Bay	Low	Enterococcus	2025
<b>VI-STJ-06</b>	Maho Bay/Francis Bay	Low	Dissolved Oxygen	2027
<b>VI-STJ-06</b>	Maho Bay/Francis Bay	Low	Turbidity	2027
<b>VI-STJ-15</b>	Round Bay	Low	Enterococcus	2027
<b>VI-STJ-19</b>	Great Lameshur Bay	Low	pH	2025
<b>VI-STJ-19</b>	Great Lameshur Bay	Low	Phosphorus	2025
<b>VI-STJ-19</b>	Great Lameshur Bay	Low	Turbidity	2025
<b>VI-STJ-21</b>	Genti, nearshore	Low	Turbidity	2025
<b>VI-STJ-25</b>	Rendezvous Bay	Low	Turbidity	2025
<b>VI-STJ-26</b>	Chocolate Hole	Low	Dissolved Oxygen	2025
<b>VI-STJ-30</b>	Cruz Bay	Low	Dissolved Oxygen	2025
<b>VI-STJ-30</b>	Cruz Bay	Low	Enterococcus	2025
<b>VI-STJ-30</b>	Cruz Bay	Low	pH	2025
<b>VI-STJ-30</b>	Cruz Bay	Low	Phosphorus	2025
<b>VI-STJ-30</b>	Cruz Bay	Low	Transparency / Clarity	2025
<b>VI-STJ-30</b>	Cruz Bay	Low	Turbidity	2025
<b>VI-STJ-31</b>	Great Cruz Bay Watershed, Offshore	Low	Enterococcus	2029
<b>VI-STJ-31</b>	Great Cruz Bay Watershed, Offshore	Low	Turbidity	2029
<b>VI-STJ-32</b>	Southwest St. John HUC 14, Offshore	Low	Turbidity	2031
<b>VI-STT-01</b>	Botany Bay	Low	Turbidity	2027
<b>VI-STT-01</b>	Botany Bay	Low	Enterococcus	2027
<b>VI-STT-02</b>	Stumpy Bay	Low	Turbidity	2027
<b>VI-STT-04</b>	Santa Maria Bay	Low	Dissolved Oxygen	2027
<b>VI-STT-04</b>	Santa Maria Bay	Low	Turbidity	2027
<b>VI-STT-05</b>	Caret Bay	Low	Dissolved Oxygen	2027
<b>VI-STT-05</b>	Caret Bay	Low	Turbidity	2027

<b>VI-STT-07</b>	Dorothea	Low	Dissolved Oxygen	2027
<b>VI-STT-07</b>	Dorothea	Low	Turbidity	2027
<b>VI-STT-13</b>	Mandahl Bay (Marina)	Low	Dissolved Oxygen	2029
<b>VI-STT-13</b>	Mandahl Bay (Marina)	Low	Enterococcus	2029
<b>VI-STT-13</b>	Mandahl Bay (Marina)	Low	Phosphorus	2029
<b>VI-STT-13</b>	Mandahl Bay (Marina)	Low	pH	2029
<b>VI-STT-13</b>	Mandahl Bay (Marina)	Low	Turbidity	2029
<b>VI-STT-15</b>	Sunsi Bay	Low	Dissolved Oxygen	2031
<b>VI-STT-16</b>	Spring Bay	Low	Dissolved Oxygen	2031
<b>VI-STT-17</b>	Mandahl Bay Subwatershed, Offshore	Low	Dissolved Oxygen	2025
<b>VI-STT-17</b>	Mandahl Bay Subwatershed, Offshore	Low	Enterococcus	2025
<b>VI-STT-17</b>	Mandahl Bay Subwatershed, Offshore	Low	Turbidity	2025
<b>VI-STT-22</b>	Red Bay	Low	Dissolved Oxygen	2025
<b>VI-STT-22</b>	Red Bay	Low	Enterococcus	2025
<b>VI-STT-22</b>	Red Bay	Low	Turbidity	2025
<b>VI-STT-23</b>	Vessup Bay	Low	Enterococcus	2025
<b>VI-STT-23</b>	Vessup Bay	Low	Temperature	2025
<b>VI-STT-23</b>	Vessup Bay	Low	Turbidity	2025
<b>VI-STT-24</b>	Red Hook Bay	Low	Enterococcus	2025
<b>VI-STT-24</b>	Red Hook Bay	Low	Turbidity	2025
<b>VI-STT-28</b>	Cowpet Bay	Low	Dissolved Oxygen	2027
<b>VI-STT-28</b>	Cowpet Bay	Low	Enterococcus	2027
<b>VI-STT-28</b>	Cowpet Bay	Low	Turbidity	2027
<b>VI-STT-31</b>	Nazareth Bay	Low	Enterococcus	2027
<b>VI-STT-31</b>	Nazareth Bay	Low	Turbidity	2019
<b>VI-STT-43</b>	St. Thomas Harbor, Inner	Low	Turbidity	2030
<b>VI-STT-45</b>	Gregerie Channel	Low	Enterococcus	2030
<b>VI-STT-45</b>	Gregerie Channel	Low	Turbidity	2030
<b>VI-STT-46</b>	Sprat Bay	Low	Enterococcus	2030
<b>VI-STT-46</b>	Sprat Bay	Low	Turbidity	2030
<b>VI-STT-47</b>	Hassel Island at Haulover Cut to Regis Point	Low	Enterococcus	2030
<b>VI-STT-47</b>	Hassel Island at Haulover Cut to Regis Point	Low	Turbidity	2030
<b>VI-STT-49</b>	Druif Bay	Low	Enterococcus	2030
<b>VI-STT-49</b>	Druif Bay	Low	Turbidity	2030
<b>VI-STT-50</b>	Flamingo Bay	Low	Enterococcus	2030

<b>VI-STT-50</b>	Flamingo Bay	Low	Turbidity	2030
<b>VI-STT-51</b>	Krum Bay	Low	Enterococcus	2032
<b>VI-STT-51</b>	Krum Bay	Low	Turbidity	2032
<b>VI-STT-52</b>	Lindbergh Bay	Low	Dissolved Oxygen	2032
<b>VI-STT-52</b>	Lindbergh Bay	Low	Enterococcus	2032
<b>VI-STT-52</b>	Lindbergh Bay	Low	Turbidity	2032
<b>VI-STT-53</b>	Cyril E. King Airport Subwatershed, Offshore	Low	Dissolved Oxygen	2032
<b>VI-STT-53</b>	Cyril E. King Airport Subwatershed, Offshore	Low	Turbidity	2032
<b>VI-STT-54</b>	Perseverance Bay, offshore	Low	Enterococcus	2033
<b>VI-STT-54</b>	Perseverance Bay, Offshore	Low	Turbidity	2033
<b>VI-STT-55</b>	Brewers Bay	Low	Dissolved Oxygen	2033
<b>VI-STT-55</b>	Brewers Bay	Low	Enterococcus	2033
<b>VI-STT-55</b>	Brewers Bay	Low	Turbidity	2033
<b>VI-STT-57</b>	Fortuna Bay	Low	Dissolved Oxygen	2033
<b>VI-STT-57</b>	Fortuna Bay	Low	Enterococcus	2033

## **Appendix 2:** 2018 303(d) List of Impaired Waters



AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Years impaired	Tentative Year of TMDL Completion
<b>VI-STC-02</b>	Frederiksted Harbor	STC-29, STC-28, VI970611	Low	C	Enterococcus	2018	2025
<b>VI-STC-02</b>	Frederiksted Harbor	STC-29, STC-28, VI970611	Low	C	Turbidity	2010, 2012, 2014, 2018	2025
<b>VI-STC-04</b>	Prosperity, nearshore	VI252619	Low	B	Enterococcus	2018	2025
<b>VI-STC-04</b>	Prosperity, nearshore	VI252619	Low	B	Turbidity	2010, 2014, 2016, 2018	2025
<b>VI-STC-06</b>	Sprat Hall Beach	STC-30, VI645288	Low	B	Enterococcus	2016	2025
<b>VI-STC-12</b>	Cane Bay	STC-32, VI201013	Medium	B	Dissolved Oxygen	2018	2022
<b>VI-STC-12</b>	Cane Bay	STC-32, VI201013	Medium	B	Enterococcus	2018	2022
<b>VI-STC-12</b>	Cane Bay	STC-32, VI201013	Medium	B	Phosphorus	2016	2022
<b>VI-STC-12</b>	Cane Bay	STC-32, VI201013	Medium	B	Turbidity	2010, 2012, 2014, 2016, 2018	2022
<b>VI-STC-13</b>	Baron Bluff, subwatershed	STC-31, VI398766	Medium	B	Dissolved Oxygen	2010, 2012, 2014, 2018	2022
<b>VI-STC-13</b>	Baron Bluff, subwatershed	STC-31, VI398766	Medium	B	Turbidity	2010, 2012, 2014, 2016	2022
<b>VI-STC-16</b>	Salt River Lagoon, Marina	STC-33, STC-33C	Low	B	Enterococcus	2010, 2012, 2014, 2018	2019
<b>VI-STC-18</b>	Salt River Bay	STC-33A STC-33B VI146901 VI558328	Low	B	Enterococcus	2010, 2012, 2014, 2016, 2018	2019
<b>VI-STC-18</b>	Salt River Bay	STC-33A STC-33B VI146901 VI558328	Low	B	Turbidity	2010, 2012, 2014, 2016, 2018	2019
<b>VI-STC-23</b>	St. Croix-By-the-Sea	STC-34, VI738082	Medium	B	pH	2010, 2012, 2014	2023
<b>VI-STC-23</b>	St. Croix-By-the-Sea	STC-34, VI738082	Medium	B	Turbidity	2010, 2012, 2014, 2016, 2018	2023

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Years impaired	Tentative Year of TMDL Completion
<b>VI-STC-26</b>	Christiansted Harbor	STC-37 STC-40 STC-41 STC-42 STC-43 STC-44 STC-45 STC-46 STC-47 STC-49 VI572166	Low	C	pH	2016	2025
<b>VI-STC-26</b>	Christiansted Harbor	STC-37 STC-40 STC-41 STC-42 STC-43 STC-44 STC-45 STC-46 STC-47 STC-49 VI572166	Low	C	Turbidity	2010, 2012, 2014, 2016, 2018	2025
<b>VI-STC-29</b>	Christiansted Harbor, East	STC-1, STC-39	Low	C	pH	2016	2025
<b>VI-STC-29</b>	Christiansted Harbor, East	STC-1, STC-39	Low	C	Turbidity	2010, 2012, 2014, 2018	2025
<b>VI-STC-30</b>	Beauregard Bay	STC-2, STC-38, VI213332	Medium	B	Enterococcus	2018	2023
<b>VI-STC-30</b>	Beauregard Bay	STC-2, STC-38, VI213332	Medium	B	Phosphorus	2018	2023
<b>VI-STC-30</b>	Beauregard Bay	STC-2, STC-38, VI213332	Medium	B	pH	2016	2023
<b>VI-STC-30</b>	Beauregard Bay	STC-2, STC-38, VI213332	Medium	B	Turbidity	2010, 2012, 2014, 2016, 2018	2023
<b>VI-STC-31</b>	Buccaneer Beach	STC-3, VI651587	Low	B	Enterococcus	2018	2032
<b>VI-STC-33</b>	Punnett Bay	VI610321	Low	B	Enterococcus	2018	2029
<b>VI-STC-33</b>	Punnett Bay	VI610321	Low	B	Turbidity	2010, 2012, 2014, 2016, 2018	2029
<b>VI-STC-36</b>	Green Cay Beach	VI563397	High	B	Enterococcus	2010, 2012, 2014, 2018	2022
<b>VI-STC-36</b>	Green Cay Beach	VI563397	High	B	Turbidity	2010, 2012, 2014, 2016, 2018	2022
<b>VI-STC-37</b>	Southgate Subwatershed, Offshore	STC-5	High	B	Dissolved Oxygen	2010, 2014, 2016, 2018	2019
<b>VI-STC-37</b>	Southgate Subwatershed, Offshore	STC-5	High	B	Enterococcus	2010, 2014, 2016	2019

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Years impaired	Tentative Year of TMDL Completion
<b>VI-STC-37</b>	Southgate Subwatershed, Offshore	STC-5	High	B	Turbidity	2010, 2014, 2016	2019
<b>VI-STC-39</b>	Teague Bay	STC-8, STC-9, VI381319, UVI-Supp	Low	B	pH	2010, 2012, 2014	2027
<b>VI-STC-39</b>	Teague Bay	STC-8, STC-9, VI381319, UVI-Supp	Low	B	Turbidity	2010, 2012, 2014, 2016	2027
<b>VI-STC-40</b>	Teague Bay Backreef	STC-10, VI351774	Low	B	Enterococcus	2018	2027
<b>VI-STC-40</b>	Teague Bay Backreef	STC-10, VI351774	Low	B	pH	2010, 2012, 2014	2027
<b>VI-STC-40</b>	Teague Bay Backreef	STC-10, VI351774	Low	B	Turbidity	2010, 2012, 2014, 2016, 2018	2027
<b>VI-STC-41</b>	Buck Island Backreef	STC-6, STC-7	Low	A	Temperature	2018	2031
<b>VI-STC-47</b>	Turner Hole Backreef	VI297470	Low	B	Enterococcus	2010, 2012, 2014, 2016, 2018	2029
<b>VI-STC-47</b>	Turner Hole Backreef	VI297470	Low	B	Turbidity	2010, 2012, 2014, 2016, 2018	2029
<b>VI-STC-56</b>	Bugby Hole Backreef	STC-14A, STC-14B, VI931289	Low	B	Enterococcus	2010, 2012, 2014, 2018	2031
<b>VI-STC-56</b>	Bugby Hole Backreef	STC-14A, STC-14B, VI931289	Low	B	pH	2016	2031
<b>VI-STC-56</b>	Bugby Hole Backreef	STC-14A, STC-14B, VI931289	Low	B	Turbidity	2010, 2012, 2014, 2016, 2018	2031
<b>VI-STC-59</b>	Canegarden Bay	STC-15, STC-15A	Medium	B	Dissolved Oxygen	2016, 2018	2022
<b>VI-STC-59</b>	Canegarden Bay	STC-15, STC-15A	Medium	B	Turbidity	2010, 2014, 2018	2022
<b>VI-STC-61</b>	Hess Oil Virgin Islands Harbor	STC-16, STC-17	Low	C	Enterococcus	2010, 2014	2031
<b>VI-STC-61</b>	Hess Oil Virgin Islands Harbor	STC-16, STC-17	Low	C	Turbidity	2010, 2014, 2018	2031
<b>VI-STC-62</b>	Limetree Bay	STC-18	Low	B	Dissolved Oxygen	2016	2031
<b>VI-STC-63</b>	Martin-Marietta Alumina Harbor	STC-19, STC-20	Low	C	Dissolved Oxygen	Prior to 2010, 2016	2031
<b>VI-STC-64</b>	Manning Bay/Estate Anguilla	STC-23	Low	B	Dissolved Oxygen	2016	2031

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Years impaired	Tentative Year of TMDL Completion
	Beach						
<b>VI-STC-65</b>	HOVENSA West	STC-21	Low	B	Dissolved Oxygen	2016	2031
<b>VI-STC-66</b>	Hovensa subwatershed, offshore	STC-22A	Low	B	Temperature	2018	2031
<b>VI-STC-75</b>	Diamond Subwatershed, Offshore	STC-24B	Low	B	Dissolved Oxygen	2010, 2014, 2016	2027
<b>VI-STC-75</b>	Diamond Subwatershed, Offshore	STC-24B	Low	B	Chronic Toxicity	2010, 2014	2027
<b>VI-STC-77</b>	Long Point Bay	STC-25	Low	B	Dissolved Oxygen	2016	2027
<b>VI-STC-77</b>	Long Point Bay	STC-25	Low	B	Turbidity	2016, 2018	2027
<b>VI-STC-79</b>	Good Hope Beach	STC-26	Low	B	Dissolved Oxygen	2016	2027
<b>VI-STC-82</b>	Sandy Point, Nearshore West	STC-27, VI896490, VI907985	Low	B	Turbidity	2010, 2012, 2014, 2018	2027
<b>VI-STJ-01</b>	Caneel Bay	STJ-54, NPS-1, VI658467	Low	B	Dissolved Oxygen	Prior to 2010	2027
<b>VI-STJ-01</b>	Caneel Bay	STJ-54, NPS-1, VI658467	Low	B	Turbidity	Prior to 2010	2027
<b>VI-STJ-02</b>	Hawksnest Bay	STJ-44B, NPS-3, NPS-4, VI255380	Low	B	Enterococcus	2018	2025
<b>VI-STJ-02</b>	Hawksnest Bay	STJ-44B, NPS-3, NPS-4, VI255380	Low	B	Turbidity	2018	2025
<b>VI-STJ-03</b>	Trunk Bay	STJ-44A, NPS-5	Low	A	Enterococcus	2018	2025
<b>VI-STJ-05</b>	Cinnamon Bay	STJ-44C, NPS-6, NPS-7	Low	B	Enterococcus	2018	2025
<b>VI-STJ-13</b>	Coral Harbor	STJ-53, STJ-56, NPS-15, NPS-16, VI823989, UVI-Supp	High	B	Dissolved Oxygen	2016	2019
<b>VI-STJ-13</b>	Coral Harbor	STJ-53, STJ-56, NPS-15, NPS-16, VI823989, UVI-Supp	High	B	Enterococcus	2010, 2012, 2014, 2018	2019

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Years impaired	Tentative Year of TMDL Completion
<b>VI-STJ-13</b>	Coral Harbor	STJ-53, STJ-56, NPS-15, NPS-16, VI823989, UVI-Supp	High	B	pH	2010, 2012, 2014	2019
<b>VI-STJ-13</b>	Coral Harbor	STJ-53, STJ-56, NPS-15, NPS-16, VI823989, UVI-Supp	High	B	Phosphorus	2016	2019
<b>VI-STJ-13</b>	Coral Harbor	STJ-53, STJ-56, NPS-15, NPS-16, VI823989, UVI-Supp	High	B	Turbidity	2010, 2012, 2014, 2016, 2018	2019
<b>VI-STJ-16</b>	Coral Bay	STJ-58	High	B	Enterococcus	2018	2019
<b>VI-STJ-19</b>	Great Lameshur Bay	STJ-50, STJ-51, UVI-Supp	Low	B	pH	2014	2025
<b>VI-STJ-19</b>	Great Lameshur Bay	STJ-50, STJ-51, UVI-Supp	Low	B	Phosphorus	2016	2025
<b>VI-STJ-23</b>	Fish Bay	STJ-48	Medium	B	Dissolved Oxygen	2016	2019
<b>VI-STJ-23</b>	Fish Bay	STJ-48	Medium	B	pH	2010	2019
<b>VI-STJ-23</b>	Fish Bay	STJ-48	Medium	B	Phosphorus	2016	2019
<b>VI-STJ-23</b>	Fish Bay	STJ-48	Medium	B	Turbidity	2010, 2016, 2018	2019
<b>VI-STJ-25</b>	Rendezvous Bay	STJ-47, NPS-23, VI204627, VI402599	Low	B	Turbidity	2010, 2012, 2016	2025
<b>VI-STJ-28</b>	Great Cruz Bay	STJ-45, NPS-25, VI779192	Medium	B	Enterococcus	2018	2023
<b>VI-STJ-28</b>	Great Cruz Bay	STJ-45, NPS-25, VI779192	Medium	B	pH	2010, 2012, 2014	2023
<b>VI-STJ-28</b>	Great Cruz Bay	STJ-45, NPS-25, VI779192	Medium	B	Turbidity	2010, 2012, 2014, 2016, 2018	2023
<b>VI-STJ-30</b>	Cruz Bay	STJ-43A, STJ-43B, STJ-43C, STJ-43D, NPS-27, NPS-28, NPS-29, VI309453	Low	B	Enterococcus	2012, 2014, 2018	2025

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Years impaired	Tentative Year of TMDL Completion
<b>VI-STJ-30</b>	Cruz Bay	STJ-43A, STJ-43B, STJ-43C, STJ-43D, NPS-27, NPS-28, NPS-29, VI309453	Low	B	pH	2012, 2014	2025
<b>VI-STJ-30</b>	Cruz Bay	STJ-43A, STJ-43B, STJ-43C, STJ-43D, NPS-27, NPS-28, NPS-29, VI309453	Low	B	Phosphorus	2016	2025
<b>VI-STJ-30</b>	Cruz Bay	STJ-43A, STJ-43B, STJ-43C, STJ-43D, NPS-27, NPS-28, NPS-29, VI309453	Low	B	Turbidity	2012, 2014, 2016, 2018	2025
<b>VI-STJ-31</b>	Great Cruz Bay Watershed, Offshore	VI456779	Low	B	Enterococcus	2018	2029
<b>VI-STJ-31</b>	Great Cruz Bay Watershed, Offshore	VI456779	Low	B	Turbidity	Prior to 2010, 2018	2029
<b>VI-STJ-32</b>	Southwest St. John HUC 14, Offshore	STJ-OFF4	Low	B	Turbidity	2014	2031
<b>VI-STT-01</b>	Botany Bay	STT-9	Low	B	Turbidity	2016, 2018	2027
<b>VI-STT-02</b>	Stumpy Bay	STT-10	Low	B	Turbidity	Prior to 2010, 2016	2027
<b>VI-STT-04</b>	Santa Maria Bay	STT-11	Low	B	Turbidity	2010, 2016	2027
<b>VI-STT-05</b>	Caret Bay	STT-12	Low	B	Turbidity	Prior to 2010, 2016, 2018	2027
<b>VI-STT-07</b>	Dorothea	STT-13	Low	B	Dissolved Oxygen	2010, 2012	2027
<b>VI-STT-07</b>	Dorothea	STT-13	Low	B	Turbidity	2010, 2012, 2016	2027
<b>VI-STT-08</b>	Hull Bay	STT-14, VI616865	Medium	B	Enterococcus	2018	2023
<b>VI-STT-08</b>	Hull Bay	STT-14, VI616865	Medium	B	pH	2010, 2012, 2014	2023
<b>VI-STT-08</b>	Hull Bay	STT-14, VI616865	Medium	B	Turbidity	2010, 2012, 2014, 2016, 2018	2023

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Years impaired	Tentative Year of TMDL Completion
<b>VI-STT-10</b>	Magen's Bay	STT-15, STT-15A, STT-15B, VI672756	Medium	B	Enterococcus	2010, 2012, 2014, 2018	2023
<b>VI-STT-10</b>	Magen's Bay	STT-15, STT-15A, STT-15B, VI672756	Medium	B	pH	2010, 2012, 2014	2023
<b>VI-STT-10</b>	Magen's Bay	STT-15, STT-15A, STT-15B, VI672756	Medium	B	Turbidity	2010, 2012, 2014, 2016, 2018	2023
<b>VI-STT-13</b>	Mandahl Bay (Marina)	STT-16B, STT-16C	Low	B	Dissolved Oxygen	2010, 2012, 2014, 2016	2029
<b>VI-STT-13</b>	Mandahl Bay (Marina)	STT-16B, STT-16C	Low	B	Phosphorus	2018	2029
<b>VI-STT-13</b>	Mandahl Bay (Marina)	STT-16B, STT-16C	Low	B	pH	2010, 2012, 2014	2029
<b>VI-STT-13</b>	Mandahl Bay (Marina)	STT-16B, STT-16C	Low	B	Turbidity	2016	2029
<b>VI-STT-17</b>	Mandahl Bay Subwatershed, Offshore	STT-16A, STT-18, VI577932	Low	B	Enterococcus	2016, 2018	2025
<b>VI-STT-17</b>	Mandahl Bay Subwatershed, Offshore	STT-16A, STT-18, VI577932	Low	B	Turbidity	2010, 2012, 2016, 2018	2025
<b>VI-STT-18</b>	Water Bay	STT-19, VI591668	Medium	B	Enterococcus	2018	2024
<b>VI-STT-18</b>	Water Bay	STT-19, VI591668	Medium	B	pH	2010, 2012, 2014	2024
<b>VI-STT-19</b>	Smith Bay	STT-20, VI431925	Medium	B	Enterococcus	2018	2024
<b>VI-STT-19</b>	Smith Bay	STT-20, VI431925	Medium	B	Turbidity	2010, 2012, 2014, 2018	2024
<b>VI-STT-21</b>	St. John Bay	STT-21A, VI327776	Medium	B	Enterococcus	2018	2024
<b>VI-STT-21</b>	St. John Bay	STT-21A, VI327776	Medium	B	Turbidity	2010, 2012, 2014, 2018	2024
<b>VI-STT-22</b>	Red Bay	STT-21B	Low	B	Dissolved Oxygen	Prior to 2010, 2016, 2018	2025
<b>VI-STT-22</b>	Red Bay	STT-21B	Low	B	Enterococcus	2018	2025
<b>VI-STT-22</b>	Red Bay	STT-21B	Low	B	Turbidity	Prior to 2010, 2016	2025
<b>VI-STT-23</b>	Vessup Bay	STT-22B	Low	B	Enterococcus	2010, 2012, 2014, 2018	2025
<b>VI-STT-23</b>	Vessup Bay	STT-22B	Low	B	Turbidity	2016	2025

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Years impaired	Tentative Year of TMDL Completion
<b>VI-STT-24</b>	Red Hook Bay	STT-22A, VII764950	Low	B	Enterococcus	2018	2025
<b>VI-STT-24</b>	Red Hook Bay	STT-22A, VII764950	Low	B	Turbidity	2010, 2012, 2016	2025
<b>VI-STT-25</b>	Great Bay	STT-23, VI505006	Medium	B	Enterococcus	2018	2024
<b>VI-STT-25</b>	Great Bay	STT-23, VI505006	Medium	B	Turbidity	2010, 2012, 2014, 2016, 2018	2024
<b>VI-STT-28</b>	Cowpet Bay	STT-24, STT-24A	Low	B	Enterococcus	2018	2027
<b>VI-STT-28</b>	Cowpet Bay	STT-24, STT-24A	Low	B	Turbidity	2016	2027
<b>VI-STT-31</b>	Nazareth Bay	VI389422	Low	B	Enterococcus	2018	2027
<b>VI-STT-31</b>	Nazareth Bay	VI389422	Low	B	Turbidity	2010, 2012, 2014, 2016	2019
<b>VI-STT-34</b>	Benner Bay Lagoon Marina	STT-27D, STT-27E	Medium	B	Enterococcus	2010, 2012, 2014, 2018	2019
<b>VI-STT-34</b>	Benner Bay Lagoon Marina	STT-27D, STT-27E	Medium	B	Turbidity	2016	2019
<b>VI-STT-35</b>	Mangrove Lagoon	STT-27A, STT-27B, STT-27C	Medium	B	Enterococcus	2010, 2012, 2014, 2018	2019
<b>VI-STT-35</b>	Mangrove Lagoon	STT-27A, STT-27B, STT-27C	Medium	B	Temperature	2010, 2012, 2014, 2016	2019
<b>VI-STT-35</b>	Mangrove Lagoon	STT-27A, STT-27B, STT-27C	Medium	B	Turbidity	2016	2019
<b>VI-STT-36</b>	Frenchman Bay Subwatershed East	STT-28A, STT-28B, VI951607	Medium	B	Enterococcus	2018	2024
<b>VI-STT-36</b>	Frenchman Bay Subwatershed East	STT-28A, STT-28B, VI951607	Medium	B	Phosphorus	2016	2024
<b>VI-STT-36</b>	Frenchman Bay Subwatershed East	STT-28A, STT-28B, VI951607	Medium	B	Turbidity	2010, 2012, 2016, 2018	2024
<b>VI-STT-37</b>	Frenchman Bay	STT-29A, VI891065	Medium	B	Enterococcus	2016, 2018	2024
<b>VI-STT-37</b>	Frenchman Bay	STT-29A, VI891065	Medium	B	Turbidity	2010, 2012, 2014, 2016, 2018	2024
<b>VI-STT-38</b>	Limetree Bay	STT-29B, VI776527	Medium	B	Enterococcus	2018	2024
<b>VI-STT-38</b>	Limetree Bay	STT-29B, VI776527	Medium	B	Turbidity	2010, 2012, 2016,	2024



AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Years impaired	Tentative Year of TMDL Completion
						2018	
<b>VI-STT-39</b>	Morningstar Bay	STT-30, VI937158	Medium	B	Enterococcus	2010, 2012, 2018	2024
<b>VI-STT-39</b>	Morningstar Bay	STT-30, VI937158	Medium	B	Turbidity	2010, 2012, 2016	2024
<b>VI-STT-40</b>	Pacquereau Bay	STT-31A	Medium	B	Turbidity	2016	2024
<b>VI-STT-43</b>	St. Thomas Harbor, Inner	STT-31B, STT-31C, STT-32A, STT-32B, STT-33A, STT-33B, STT-34, STT-35, STT-36, STT-37, STT-38	Low	C	Turbidity	2010, 2012, 2014, 2016	2030
<b>VI-STT-45</b>	Gregerie Channel	STT-1, STT-39	Low	B	Enterococcus	2018	2030
<b>VI-STT-45</b>	Gregerie Channel	STT-1, STT-39	Low	B	Turbidity	2016	2030
<b>VI-STT-46</b>	Sprat Bay	STT-42	Low	B	Enterococcus	2018	2030
<b>VI-STT-46</b>	Sprat Bay	STT-42	Low	B	Turbidity	2016	2030
<b>VI-STT-47</b>	Hassel Island at Haulover Cut to Regis Point	STT-2, STT-3	Low	C	Turbidity	2010, 2014, 2016	2030
<b>VI-STT-49</b>	Druif Bay	STT-40	Low	B	Enterococcus	2018	2030
<b>VI-STT-49</b>	Druif Bay	STT-40	Low	B	Turbidity	Prior to 2010, 2016	2030
<b>VI-STT-50</b>	Flamingo Bay	STT-41	Low	B	Enterococcus	2018	2030
<b>VI-STT-50</b>	Flamingo Bay	STT-41	Low	B	Turbidity	2010, 2016	2030
<b>VI-STT-51</b>	Krum Bay	STT-4	Low	C	Turbidity	2016, 2018	2032
<b>VI-STT-52</b>	Lindbergh Bay	STT-5A, STT-5B, VI514102	Low	B	Enterococcus	2018	2032
<b>VI-STT-52</b>	Lindbergh Bay	STT-5A, STT-5B, VI514102	Low	B	Turbidity	2010, 2012, 2014, 2016, 2018	2032
<b>VI-STT-53</b>	Cyril E. King Airport Subwatershed, Offshore	STT-6C	Low	B	Dissolved Oxygen	Prior to 2010	2032
<b>VI-STT-53</b>	Cyril E. King Airport Subwatershed, Offshore	STT-6C	Low	B	Turbidity	2016	2032
<b>VI-STT-54</b>	Perseverance Bay, offshore	STT-6B	Low	B	Enterococcus	2018	2033
<b>VI-STT-54</b>	Perseverance Bay, Offshore	STT-6B	Low	B	Turbidity	2010, 2012, 2016	2033

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Years impaired	Tentative Year of TMDL Completion
<b>VI-STT-55</b>	Brewers Bay	STT-7A, VI293962	Low	B	Enterococcus	2018	2033
<b>VI-STT-55</b>	Brewers Bay	STT-7A, VI293962	Low	B	Turbidity	2010, 2012, 2014, 2016, 2018	2033

### **Appendix 3:** 2018 Responsiveness Summary for US Virgin Islands Assessment Methodology

# **Responsiveness Summary**

## **Public Notice Comments on 2018 US Virgin Islands Assessment Methodology**

**April 2019**



**Prepared By:**

**Department of Planning & Natural Resources  
Division of Environmental Protection**

## I. Introduction

The Clean Water Act requires States and Territories to conduct water quality surveys to determine if its waters are healthy and are of sufficient quality to meet their designated uses and attain water quality standards. Water quality data for individual Assessment Units (AU) from internal sources (that is, the Department of Planning & Natural Resources, DPNR) and external sources are evaluated and, if water quality standards are exceeded and designated uses are not being attained, the AU will be placed on the 2018 303(d) Impaired Waterbody List.

States and Territories are required to submit the methods used to collect, analyze, and interpret data to determine compliance with applicable water quality standards and assess support of the applicable designated uses in an Assessment Methodology Document for USEPA and public review.

The DPNR Division of Environmental Protection (DEP) has prepared this report to summarize and respond to the comments received on the public noticed draft of the 2018 303(d) Impaired Waterbody List associated Assessment Methodology Document. No public hearings were held; however, written comments were received from the US EPA and one organization (the Coral Bay Community Council, CBCC) during the 60-day public notice period. The public comment period began on July 31, 2018 and ended on October 4, 2018. The public notice for hearing was published in The Daily News.

## II. Comments

During the public comment period, DPNR received comments via email on the 2018 Assessment Methodology Document from the US Environmental Protection Agency (EPA) on November 14, 2018, and from Coral Bay Community Council (CBCC) on November 23, 2018. Below is a summary of the comments received by DPNR from EPA and CBCC, and DPNR's responses to those comments. **Please note that while the comments received resulted in changes to the 2018 Assessment Methodology document, no significant changes were made that would require another public notice or hearing.**

***Public Comments received on the 2018 Assessment Methodology Document via email:***

<p><b>1.</b></p>	<p>Rachel McKinley (on behalf of CBCC):</p> <p>Page 5: Class “A” Waters, Designated Uses: Modified “...Under Water Trail at Trunk Bay...” to “Underwater Trail at Trunk Bay...”.</p>	<p><b>VIDPNR agrees with the commenter and has amended the sentence as suggested.</b></p>
<p><b>2.</b></p>	<p>Rachel McKinley (on behalf of CBCC):</p> <p>Page 13: Class B unmonitored waters (57): Highlighted the following:</p> <ul style="list-style-type: none"> <li>• VI-STJ-07 Maho Bay subwatershed, offshore</li> <li>• VI-STJ-08 Mary Point</li> <li>• VI-STJ-14 Hurricane Hole</li> <li>• VI-STJ-18 Grootpman Bay</li> <li>• VI-STJ-27 Rendezvous Bay subwatershed, offshore</li> </ul> <p>The highlighted sights- are the[y] NPS waters?</p>	<p>VIDPNR notes that VI-STJ-14 Hurricane Hole and VI-STJ-27 Rendezvous Bay subwatershed, offshore are not part of the Virgin Islands NP.</p> <p>However, the Virgin Islands NP does incorporate VI-STJ-07 Maho Bay subwatershed, offshore, VI-STJ-08 Mary Point and VI-STJ-18 Grootman Bay.</p> <p>The section being referred to “Unmonitored Waters” refers to waters not currently monitored through DPNR-DEPs Ambient Monitoring Program (or any other internal programs). Therefore, even though NPS may monitor the above three waters, they are classed as “unmonitored waters” for DPNR-DEPs purposes since there are no DEP monitoring stations located within these assessment units.</p> <p>DPNR-DEP has no control over whether NPS provide data, collect data in accordance with DPNRs QA/QC protocols or in a quantity sufficient to assess the waters. Therefore, it is the ongoing goal of DEP to internally assess and characterize the condition of all waters in the United States Virgin Islands and to eventually include monitoring stations within these assessment units.</p>

<b>3.</b>	Rachel McKinley (on behalf of CBCC): Page 13: Class B unmonitored waters (57): [In reference to VI-STJ-18 Grootpan Bay]  Did you mean Grootpan Bay?	<b>VIDPNR agrees with the commenter and has corrected the spelling error to “Grootpan Bay”, as suggested.</b>
<b>4.</b>	Rachel McKinley (on behalf of CBCC): Page 13: Class B unmonitored waters (57):  Various spelling corrections	<b>VIDPNR agrees with the commenter and has corrected the spelling of “subwatershed”, “Rendezvous Bay” and “Judith’s Fancy”</b>
<b>5.</b>	Sharon Coldren (on behalf of CBCC): Page 14 and 15, Figures and 10 & 11:  The diagram looks like all areas, not differentiated? Am I misreading labels?	<b>VIDPNR agrees with the commenter and has corrected the Figure descriptions on page 14 &amp; 15 to “All Assessment Units, including monitored waters, unmonitored waters, and monitored but not assessed waters” rather than “Currently unmonitored waters, and monitored but not assessed waters”</b>
<b>6.</b>	Helen Grebe (on behalf of US EPA):  Page 16 list[s] 83 near-shore sites from St Croix. I believe this is a typo and should be 55.	<b>VIDPNR agrees with the commenter and has corrected the error on page 16 to “55 near-shore sites from St Croix.”</b>
<b>7.</b>	Rachel McKinley (on behalf of CBCC): Page 18: [In reference to basing coral reef ecosystems on the Benthic Habitat Atlas of Puerto Rico and the U.S. Virgin Islands (2002)]  Is there an updated set? Lidar data?	<b>VIDPNR notes that there is currently no updated Benthic Habitat Atlas for the US Virgin Islands.</b>

<p><b>8.</b></p>	<p>Sharon Coldren (on behalf of CBCC): Page 18, Section 3.1.2 <i>DPNR Monitoring Sites in Areas that contain coral reef ecosystems</i></p> <p>As I look at the maps from this #22 &amp; 23 attached – it seems clear to me that some of the coral bay monitoring points are in or directly adjacent to reef ecosystems from this source...</p>	<p><b>For the purpose of the 2018 Assessment Methodology, DPNR determines that was constitutes coral reef ecosystems would be equivalent to the following 2002 NOAA Benthic Habitat Maps polygons only: Reef/Linear Reef, Reef/Spur and Groove Reef and Reef/Patch Reef. Therefore, some sites may be near coral reef habitat, but not necessarily within coral reef ecosystems. Nonetheless a reassessment of site locations was made and it was in fact determined that two more sites were considered to be in coral reef ecosystems: STT-14 &amp; STJ-57. A reassessment of the data was conducted but using the more stringent criteria resulted in no change to the AUs in which these sites were located, and no change to the draft 303(d) list.</b></p>
<p><b>9.</b></p>	<p>Rachel McKinley (on behalf of CBCC): Page 18, Section 3.1.3 <i>Evaluation of External Data:</i></p> <p>CBCC also submitted data during this time, although was not in relations to the monitoring site- inland data.</p>	<p>Only Assessment Units in Marine and Coastal Waters were included on the 2018 303(d) List. There is currently no comprehensive Inland Water Quality Monitoring Program within the VI, and there is limited Standards for Inland Water Quality. Therefore, external monitoring data for assessing inland waters will not be evaluated until they are supplemented by data collected internally by DEP.</p>
<p><b>10.</b></p>	<p>Rachel McKinley (on behalf of CBCC): Page 19, Section 3.3 <i>Visual Data Sources:</i> [In reference to there being no visual data sources or logged incidents]:</p> <p>What about the sargassum?</p>	<p>VIDPNR notes that visual data from Sargassum would be a useful addition. However, the inclusion of visual observations for Sargassum was only added specifically to the Beach Monitoring Program in September 2018. Therefore, any intermittent data on the presence of sargassum would be considered incomplete.</p> <p>VIDPNR intends to include this data in the 2020 303(d) list, since the WQRS state the need for waters to be free from “Matter - floating debris, ... and other nuisance matter.”</p>



11.	<p>Rachel McKinley (on behalf of CBCC): Page 19, <i>Section 3.3 Visual Data Sources</i>:</p> <p>[In reference to there being no visual data sources or logged incidents]: No spills from the storms? What about all the boats with gas??</p>	<p>There was no specific post-storm monitoring of oil, grease and other marine fluid spills conducted throughout the Territorial waters by DPNR-DEP or reported to DEP. However, in response to this comment, DEP performed a review of the Beach Water Quality Monitoring Program Field Sheets and the Ambient Monitoring Program Field Sheets following the September 2017 storms and no oil sheen was noted on any of the field observation sheets. Field Teams are trained to document such spills if they are observed. However, it is possible that any such spills had dissipated by the time the quarterly Ambient sampling was conducted.</p>
12.	<p>Rachel McKinley (on behalf of CBCC): Page 20, <i>Section 3.6 Natural Disasters</i></p> <p>Edited: “However, the following storm events occurred...” to “However, the following storm and associated sampling events occurred...”</p>	<p><b>VIDPNR agrees with the commenter and has amended the sentence as suggested.</b></p>
13.	<p>Rachel McKinley (on behalf of CBCC): Page 21, <i>Section 3.7 QA/QC</i>:</p> <p>Add a link or appendix to the SOPs &amp; QAPPs.</p>	<p><b>VIDPNR agrees with the commenter and shall add a link to the SOPs and QAPPs upon finalization of the current drafts.</b></p>
14.	<p>Sharon Coldren (on behalf of CBCC): Page 27, <i>Section 4.2.3 Habitat Assessment</i>: [In regard to the work group to discuss correlations between water quality and various indicators]</p> <p>CBCC would like to be linked in to this group, for identifying and monitoring species in Coral Bay, as we do somewhat routinely with volunteers.</p>	<p><b>VIDPNR agrees with the commenter that CBCC can provide useful contribution to such a workgroup and shall include CBCC on further progress with this workgroup.</b></p>

<p><b>15.</b></p>	<p>Sharon Coldren (on behalf of CBCC): Page 27, Section 4.2.4 <i>Biological Assessment</i>: [In regard to obtaining biological data to be evaluated against the narrative Biocriteria outlined in the VI Water Quality Standards]</p> <p>We would like to know how to do this, and probably could do it, in cooperation with FWS and others, and get a grant for it.</p>	<p><b>VIDPNR agrees with the commenter that there is a need to diversify the Agencies which provide biological data to be assessed against paired water quality conditions.</b></p> <p><b>VIDPNR is a part of the BCG Workgroup. The Workgroup is creating a Biological Condition Gradient (BCG) model which will allow changes in biological community structure and function (e.g. species abundance, rugosity, biomass etc.) to be correlated to Water Quality Standards.</b></p> <p><b>Once this Model has been finalized, VIDPNR will share with CBCC to ascertain whether it is something that could be implemented.</b></p>
<p><b>16.</b></p>	<p>Rachel McKinley (on behalf of CBCC): Page 36, <i>Attachment A</i>: [In regard to the list of agencies which were contacted to request data during the Data Solicitation Period]</p> <p>Why no response or submitted data?</p>	<p>Agencies are given 30 days to provide VIDPNR with relevant monitoring data for the monitoring period with the associated Quality Assurance Project Plan. DPNR public noticed a Data Solicitation request on January 25, 2018, which ended on February 24, 2018.</p> <p><b>However, there was an omission from the original Attachment A. DPNR did receive data from NOAA related to the study: Phase 1 Porewater Toxicity Testing of Sediment from 25 Near-Shore sites in St. Croix, USVI, done by Lisa A. May and Cheryl M. Woodley (NOS NCCOS CCEHBR &amp; HML, CRCP Project 1133, November 2016).</b></p> <p><b>This has been added to the AM document.</b></p>
<p><b>17.</b></p>	<p>Sharon Coldren (on behalf of CBCC):</p> <p>General Comment (emailed):</p> <p>Seeing phosphorus and dissolved oxygen issues make me wonder about wastewater treatment issues and subterranean groundwater contamination of the ocean – more than just surface flows and land development issues. Is there a label for these type of concerns in the assessment methodology?</p>	<p>The scope of the assessment methodology document does not include labeling, grouping or expanding on specific sources of pollution, except to determine if they are anthropogenic or not (in order to determine if an exceedance is natural or not). The purpose of the AM document is primarily to determine if there is an impairment, not what the cause of it is.</p>

## **Appendix 4: 2018 Responsiveness Summary for US Virgin Islands 303(d) List of Impaired Waters**

# **Responsiveness Summary**

## **2018 US Virgin Islands 303(d) List of Impaired Waters**

**April 2019**



**Prepared By:**

**Department of Planning & Natural Resources  
Division of Environmental Protection**

### III. Introduction

The Clean Water Act requires States and Territories to conduct water quality surveys to determine if its waters are healthy and are of sufficient quality to meet their designated uses and attain water quality standards. Water quality data for individual Assessment Units (AU) from internal sources (that is, the Department of Planning & Natural Resources, DPNR) and external sources are evaluated and, if water quality standards are exceeded and designated uses are not being attained, the AU will be placed on the 2018 303(d) Impaired Waterbody List.

The DPNR Division of Environmental Protection (DEP) has prepared this report to summarize and respond to the comments received on the public noticed draft of the 2018 303(d) Impaired Waterbody List. No public hearings were held; however, written comments were received from the US EPA and one organization (the Coral Bay Community Council, CBCC) during the 60-day public notice period. The public comment period began on July 31, 2018 and ended on October 4, 2018. The public notice for hearing was published in The Daily News.

### IV. Comments

During the public comment period, DPNR received comments via email on the 2018 303(d) List of Impaired Waters from the US Environmental Protection Agency (EPA) on November 14, 2018, and from Coral Bay Community Council (CBCC) on November 23, 2018. Below is a summary of the comments received by DPNR from EPA and CBCC, and DPNR's responses to those comments. **No changes were made to the 303(d) list of Impaired Waters as a result of the public comment period.**

***Public Comments received on the 2018 303(d) List of Impaired Waters via email:***

<b>Number</b>	<b>Comment</b>	<b>Response</b>
<b>1.</b>	<p>Helen Grebe (on behalf of US EPA):</p> <p>I do not see station STC33 on the 303d list. I have reviewed the 2017 dissolved oxygen and turbidity data for this station and have found exceedances. Is this an oversight? Or do these exceedances not meet the criteria for listing?</p>	<p>VIDPNR agrees with the commenter that there are 9 exceedances for STC-33 for Dissolved Oxygen (DO). However, given that there is an existing TMDL for Salt River for DO, the AU will not be included on the 303(d) list as well.</p> <p>In addition, VIDPNR notes that while there are exceedances of turbidity, the criteria for listing have not been met, since the Marina is one of the Class B waters that has a Turbidity exemption in the VI Water Quality Standards (VIWQS), based on §186-11 (Natural Conditions). Therefore, despite turbidity values exceeding the limit for Class B Waters, the AU will not be listed for turbidity (however, please note that clarity criteria still apply).</p>
<b>2.</b>	<p>Helen Grebe (on behalf of US EPA):</p> <p>The 303d list has a tentative year of TMDL completion. In addition, I recommend developing a tentative year to begin development of the TMDL.</p>	<p><b>VIDPNR agrees with the commenter and will include a tentative year to begin development of the TMDL in the 2020 list, to improve TMDL planning and ensure timeframes are adhered to.</b></p>
<b>3.</b>	<p>Helen Grebe (on behalf of US EPA):</p> <p>The 303d list sets a priority of high, medium or low. The methodology document does not document how this is determined. I recommend developing a formal process to set the priority. The process does not have to be complex, maybe a weighted checklist with a few questions. For example, each water body would get more points if it was previously listed, more points if it's in a sensitive area, more points if it exceeded more than one WQS, more points if it consistently exceeded the WQS, and so on.</p>	<p><b>VIDPR agrees with the commenter that a standardized, transparent and objective process should be in place to determine the priority rankings for TMDL development. Currently, there is an informal procedure, but it is the aim of VIDPNR to formalize and document this process prior to the issuance of the 2020 303(d) list.</b></p>

<p><b>4.</b></p>	<p>Sharon Coldren (on behalf of CBCC):</p> <p>I took a few moments to refresh myself on the 2016 303d list. From before your time on this, we have had some errors in GPS/map positioning of the data collection points – and thus the AU units that you assess. Previous corrections are included here, although I do have a couple of questions or areas I am confused about.</p> <p>I think that STJ 55 and NPS 26 Turner Bay is in Coral Bay (not in Enighed Pond – where it is listed in the 2016 303d list. P. 217). I might be wrong, but – just the # tells you it’s on the eastern side of STJ. It is the outcropping of the Hurricane Hole bay – so may be in National Park waters (monument) waters.</p>	<p>Although there were errors in the GPS positioning of certain points, STJ-55 is listed correctly as being in Turner Bay on the west side of St. John. The commenter is correct that most sites numbered similarly to STJ-55 (e.g. STJ-52, -53, -56-, 57- and -58) are located on the east side of St. John in the Coral Bay/East End area, however, due to historic numbering, STJ-55 is not.</p>
<p><b>5.</b></p>	<p>Sharon Coldren (on behalf of CBCC):</p> <p>I was surprised to see that no STJ AUs were deemed to be coral reef ecosystems. I have attached two maps from the 2002 benthic habitat report you reference that seem to show these in STJ to my eye. And we have more patch reef than these show.</p>	<p>For the purpose of the 2018 Assessment Methodology, DPNR determines that what constitutes coral reef ecosystems would be equivalent to the following 2002 NOAA Benthic Habitat Maps polygons only: Reef/Linear Reef, Reef/Spur and Groove Reef and Reef/Patch Reef. Therefore, some sites may be near coral reef habitat, but not necessarily within coral reef ecosystems. Nonetheless a reassessment of site locations was made and it was in fact determined that two more sites were considered to be in coral reef ecosystems: STT-14 &amp; STJ-57. A reassessment of the data was conducted but using the more stringent criteria resulted in no change to the AUs in which these sites were located, and no change to the draft 303(d) list.</p>